DEC 20 1926
Medical Lib.

The

British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

Including an Epitome of Current Medical Literature.

WITH SUPPLEMENT.

No. 3433. SATURDAY, DECEMBER 4, 1926. **Price 1/3**

Scarlet Fever Antitoxin

SCARLET FEVER STREPTOCOCCUS ANTITOXIN, CONCENTRATED (Globulin)

(Parke, Davis & Co.)

¶ **For Treatment.** A dose of 10 c.c. of this antitoxin usually establishes normal temperature within 36 hours, and the quarantine period is shortened in many cases by nearly 50 per cent. Early administration generally arrests the progress of complications, and in some cases has mitigated the severity of complications already developed.

¶ **For Prophylaxis.** Results so far reported seem to indicate that a dose of 2·5 c.c. of this antitoxin administered to children of from 5 to 15 years of age will confer passive immunity for from 10 to 14 days.

¶ **For Diagnosis.** The *diluted* antitoxin injected intradermally into an area where the suspected rash is most marked will, in a case of scarlet fever, produce the diagnostic rash-fading reaction of Schultz-Charlton.

Further particulars will be sent on request.

PARKE, DAVIS & COMPANY 50 BEAK ST., LONDON, W.1

Telephone: Regent 1301 *Telegrams: "Cascara, London"*

Harveiana Edinburgensia:

RELATIONS OF WILLIAM HARVEY TO MEDICINE IN EDINBURGH.

BEING THE HARVEIAN ORATION TO THE EDINBURGH HARVEIAN SOCIETY

BY

SIR ROBERT PHILIP, M.D., LL.D.,

CONSULTING PHYSICIAN, ROYAL INFIRMARY, EDINBURGH; PRESIDENT-ELECT OF THE BRITISH MEDICAL ASSOCIATION.

FELLOW HARVEIANS,—The return of our Harveian Festival recalls from the subconscious a host of feelings to each of us: in the forefront the sense of profound reverence towards one of the *Dii immortales* of medicine; in little less degree, the sense of pride—national pride—that the unravelle- of the enigma of the circulation was British born. For it is not we alone who, on the day of celebration, stand bareheaded before the perpetual monument; in every school of medicine the world over the same impulse is felt, whatever the outward expression.

The recurrence of the festival rekindles our interest in the personality of the man and the bygone times when he accomplished his work, and in the relation of that time to ours. The events of those far-off days and of this evening in the Physicians' Hall intermingle in curious intimacy—a closer intimacy than we may have hitherto realized. That is the burden of my song, and on that account I have ventured to label these pre-prandial jottings "Harveiana Edinburgensia."

Hopeless as it seems to shift the kaleidoscope so as to reveal any further facet in the precious stones unearthed by the labours of his genius, and impossible as it may be to add to the knowledge of his life, I crave indulgence in seeking to forge some links which attach William Harvey to our city, and particularly to the University and Edinburgh School of Medicine.

Partial as may be its success, the effort may not lack in interest on the occasion of the Harveian Festival which coincides so closely with the celebration of the bicentenary of the Medical Faculty. For it seems to me a reasonable view, on evidence to be presently submitted, that in the events which culminated in the creation of the Edinburgh School the manifold activities of Harvey played no insignificant part.

HARVEY'S EARLY LIFE AND SCHOOLING.

In order to clarify the leading *motif* of this address, you will allow me, first, to recall some biographical points, familiar enough, but with special bearing on my purpose. The facts are drawn from a variety of sources. For those which bear on Harvey's life I would express my especial indebtedness to Sir Norman Moore's *History of St. Bartholomew's Hospital*, and Sir D'Arcy Power's *William Harvey*.

William Harvey was born at Folkestone on April 1st, 1578. His father was an alderman of Folkestone and filled the office of Mayor in 1600. His mother must have been a remarkable woman, and probably influenced her family (seven sons and two daughters) in high degree. On her tombstone she is described as

> "A Godly harmles Woman: A chaste loveings Wife;
> A Charitable qviet Neighbour: A cofortable frendly Matron:
> A provident diligent Hvswyfe: A carevll teder-harted Mother.
> Deere to her Hvsband: Reverensed of her Children:
> Beloved of her Neighbovrs: Elected of God."

Harvey was educated at the King's School, Canterbury (five years), and passed to Cambridge (Caius College) at the age of 16. The selection of Caius College seems an early indication of his direction towards medicine, for Caius, the founder of the college, besides being a classic, seems to have been one of the first exponents of practical anatomy in this country. Caius College had the privilege of receiving annually for dissection the bodies of two criminals who had undergone capital punishment. Harvey took the degree of B.A. in 1597.

About this date his passion for travel showed itself, and in 1598 he set out for Italy by way of France and Germany. Anatomist and physician in embryo, he made for Padua—which had been the home of Vesalius and was at the date of Harvey's residence the school of Fabricius (de Aquapendente). Padua was the university at which Caius had taught. In each session, which commenced with an oration in praise of medicine, followed by High Mass and the Litany, the entire body was dissected twice in public by the professor of anatomy.

Fabricius must have been a remarkable man. Admittedly most learned, he was given precedence of all other professors, with a right to wear a robe of purple and gold and the golden collar of the Order of St. Mark. In his old age he was granted an annual pension of a thousand crowns. Harvey seems to have been singled out by Fabricius, then aged 61, who became his close friend. At the time of Harvey's arrival Fabricius was engaged in original work on the circulation, especially the veins. Harvey was admitted Doctor of Medicine of Padua in 1602. The diploma, dated April 25th, records that "he had conducted himself so wonderfully well in the examination, and had shown such skill, memory, and learning, that he had far surpassed even the great hopes which his examiners had formed of him. They decided therefore that he was skilful, expert, and most efficiently qualified both in arts and medicine, and to this they put their hands, unanimously, willingly, with complete agreement, and unhesitatingly." The diploma of Padua granted to Harvey leave to practise and teach in every land and seat of learning.

HARVEY AND THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

On returning to England Harvey fixed his residence in London. He took the degree of Doctor of Medicine at Cambridge, and became a Member of the College of Physicians of London in 1604. Later in the same year he married Elizabeth Browne, daughter of Dr. Lancelot Browne, physician to Queen Elizabeth and to James I. His professional advance was rapid. In June, 1607, he was admitted a Fellow of the College of Physicians, and in 1609 was elected to the office of physician to St. Bartholomew's Hospital. In his application for this post he had the support of King James I and the president of the Royal College of Physicians.

In 1615 he was appointed Lumleian Lecturer—one of the earliest offices in the gift of the Royal College of Physicians, which continues till this day. The fact that it was primarily an anatomico-surgical lectureship is interesting, and emphasizes the close relation which existed in those days between the better educated physicians and surgeons. Harvey, be it noted, was a leading Fellow of the Royal College of Physicians, and we commonly think of him nowadays as a physician. The Harveian Festival of London is the central feature in the annual life of the Royal College of Physicians. Yet Harvey was conspicuously an anatomist and biologist. He held the Lumleian Lectureship for forty years, and he evidently practised surgery, for one of the clauses of his will bequeaths especially his "little silver instruments of surgery to Dr. Scarborough."

His function as Lumleian Lecturer seems to have corresponded to that of professor of anatomy. From the earliest times anatomy, as the foundation of medicine, held a high place. The lecturer on anatomy was held in supreme respect. Anatomical discourses were conducted with considerable ceremony. The fact is illustrated in Rembrandt's celebrated picture of Professor Tulp demonstrating the relations of the flexor sublimis (perforatus) and flexor profundus (perforans) of the hand in the midst of a group of colleagues of the Guild of Surgeons of Amsterdam (painted in 1632).

Harvey's attitude to the Lumleian Lectures shows the large scope of the lectureship and no less the width of his own outlook. Among the principles he laid down for himself in the conduct of his lectures are included the following:

> Not to speak of anything which can be as well explained without the body or can be read at home.
>
> Not to enter into too much detail, or into too minute a dissection, for the time does not permit.
>
> To enforce the right opinion by remarks drawn from far and near, and to illustrate man by the structure of animals. To bring in points beyond mere anatomy in relation to the causes of diseases, and the general study of nature, with the object of

Schering

From the Kahlbaum Laboratories

Neutralon

TRADE MARK

Neutralon affords an improved means for the treatment of hypersecretion, hyperacidity, gastric and duodenal ulcers, etc.

It is a synthetic aluminium silicate in the form of a fine powder which adheres to the inflamed gastric mucosa, and then, undergoing slow decomposition, splits up into silicic acid and aluminium chloride. The former acts as a protective covering, the latter as an astringent which restrains the over-secretion of acid and pepsin.

Neutralon comes with a fine reputation from the Continent, where it has been the subject of favourable notice in many standard textbooks on medicine.

From the Schering Laboratories

Veramon

TRADE MARK

The safe and effective sedative and analgesic.

Medinal

TRADE MARK

The safe and soluble sedative and hypnotic.

Atophan

TRADE MARK

The uric acid eliminant, antiphlogistic, and analgesic. Rapidly relieves the pain and improves the condition in acute and chronic gout and rheumatism, lumbago, sciatica, iritis, etc.

Samples and Literature on application to

SCHERING Ltd.,

3, LLOYDS AVENUE, LONDON, E.C.3.

And in testimony of his close attachment to Sir Charles Scarborough the will reads:

"I give my velvet gown to my loving friend Mr. Dr. Scarborough"; and later, "And to Dr. Scarborough all my little silver instruments of surgery."

In thus briefly recalling some points in the life of Harvey I have sought to punctuate those which reveal to us the manner of man he was: humanist, biologist, physician with a sidelong glance towards surgery, the confidant of the best men of his time, the trusted adviser and friend of two successive sovereigns, and the supremely devoted Fellow of the Royal College. His influence in all these spheres must have been great.

"He dwelt among men: physician and sage,
He served them, loving them, healing them;
* * * * * *
He played on men, as his master, Phoebus, on strings
Melodious."

HARVEY AND THE UNIVERSITY OF EDINBURGH.

My immediate purpose in rehearsing these points has been to inquire whether, and to what degree, his influence had bearings on events in the history of Edinburgh, and particularly of the Edinburgh Medical School.

It is indeed a remarkable fact that William Harvey, born in England, educated at Cambridge and Padua, and early and closely attached to the Royal College of Physicians of London, was, by reason of the circumstances of the times, brought into closest relationship with the monarch who, after long residence and rule in Scotland, carried to England a full knowledge of the educational and allied conditions in Edinburgh, to which city, some twenty years before, he had granted the Royal Charter founding King James's College—the Town's College—which subsequently developed into the University of Edinburgh.

William Harvey was born just four years before the foundation of the Town's College of Edinburgh in 1582. It matters little whether credence is to be given to the detailed, but apparently mythical, story of Bower in his history of Edinburgh University, when he tells how Bishop Reid of Orkney bequeathed 8,000 merks "to the town of Edinburgh for the purpose of erecting a University within the city," and that in 1561, "on the faith of speedily obtaining" the said sum, the town council discussed the establishment of a college, and "in 1563 purchased part of the ground upon which the College at present stands"; and that "three years afterwards the unfortunate and susceptible Mary, whose generosity was unbounded, her love of learning sincere, and her proficiency considerable, entered warmly into the same views, and endowed with revenues the institution which she was so anxious to patronize." Certain it is that about the date indicated the town council began to busy themselves regarding the application of public moneys which hitherto had been paid to "papists, priests, friars, monks, nuns, and others of that wicked sort, for maintaining of idolatry and vain superstition," and resolved that these should "be applied to more profitable and godly uses, such as for sustaining of the true Ministers of God's Word, founding and building of Hospitals for the poor, and Colleges for learning and upbringing of the youth, and other such godly works."

Gradually from out the rather vague educational proposals the conception of the Town's College took shape. The city register, of date August 9th, 1564, records that the stonework of the Kirk-of-Field is being taken down, and that the council think it should "be bought for the good Town, either for the Hospital or for a University to be made in the said Kirk-of-Field."

The final acquisition of the Kirk-of-Field took time. There seems no indication that Mary Stuart was inspired by a wish to transfer the site for the purpose. The desire of the city of Edinburgh and the city ministers to have a college founded seems to have been thwarted in part by the three older universities in which the influence of the bishops continued. It seems certain that the final practical move towards the foundation of the college was made by the city ministers, more especially Mr. James Lawson, who, according to Craufurd, "Having obtained a gift of a University within the City, in the beginning of this year (1581) purchased from John Gib and John Fenton, servants to the King, their right to the Kirk-of-Field to be a place for the situation of the intended College."

Whether or not there was an earlier charter, as has been suggested, the charter of James VI, dated April 14th, 1582, gave large powers to the town council in the direction of founding a college or colleges. It is significant in this connexion that in 1617 King James VI—or, as he then was, King James I of England—when he revisited Scotland, is reported to have said: "After the founding of the college of Edinburgh had been stopped for sundry years in my minority, so soon as I came to any knowledge I zealously held hand to it."

However we may choose to appraise the amount of King James's zeal, the above statement made by the King has especial interest in view of his having lived in Edinburgh during twenty-one years following the grant of the charter to the university, and thereafter in England some fourteen years before the above statement was made. Coming as the statement does some thirty-five years after the event, it suggests that the circumstances of the grant of the charter had made a definite impression, and there is reasonable presumption that the King was familiar with subsequent developments during his residence both in Edinburgh and later in the South. At that time there was no question regarding medical teaching in Edinburgh.

To return to Harvey. By his own qualities and happy matrimonial alliance his advance was rapid, professionally and socially. Four or five years after his return from Padua we find him a Fellow of the College of Physicians and physician to St. Bartholomew's Hospital, being supported for the latter office by King James and by the president of the Royal College of Physicians. During the succeeding years his relations with the Court had become pretty intimate. This is evidenced by the manner in which his appointment as Physician Extraordinary was made. Harvey was thus in close touch with King James at the date when the King recalled, in the words I have quoted, the circumstances of the foundation of Edinburgh University. So rapid was Harvey's advance in the College of Physicians that in 1613 he was appointed one of the four Censors of the College, and, in 1615, Lumleian Lecturer.

THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

It is not likely that those facts and their bearings were unknown to King James. Can we doubt that from time to time conversation turned on such topics? It is, therefore, of very great interest to recall that the first move towards the foundation of the Royal College of Physicians of Edinburgh was made in 1617, on the occasion of the King's revisit to Holyrood. If nothing immediate came of it, it seems hardly conceivable that the endeavour failed from lack of interest on the part of the King.

The personal relations between the Court and Harvey were continued throughout the reign of Charles I, who nominated him to more than one office, and, in 1631, appointed him to be his Physician in Ordinary. It is significant to recall that that date corresponds very nearly with a further effort towards the foundation of the Edinburgh College. Harvey was by this time in intimate relations with King Charles, and accompanied him to Holyrood in 1633. On the occasion of that visit Harvey, who found time to study the solan geese on the Bass Rock, cannot fail to have become well versed in the *pros* and *cons* in the leading professional question of the moment. At that date—within a few years after the publication of his great work on the circulation—his interest in the project and his influence must both have been great. They were not, however, sufficient to overcome local prejudice and animosity.

From now onwards Harvey's life was growingly overshadowed by the surging difficulties which led finally to civil war and the execution of the King in 1649. But during the Oxford period (1642-46) began the very significant relation between Harvey and Scarborough which ultimately ripened into affectionate friendship. In a very literal sense Harvey's mantle fell on Scarborough (see the terms of Harvey's will), who went to London on Harvey's suggestion, and succeeded him as Lumleian Lecturer in 1656.

During ten or twelve years these two men must have exchanged many ideas. Inevitably they would discuss

correcting mistakes and of elucidating the use and actions of parts, for the use of anatomy to the physician is to explain what should be done in disease.

It is noteworthy that Harvey's first course of lectures, delivered in 1616 (the year of Shakespeare's death), already contained in embryo his great discovery, which was only formally published in 1628. In discoursing on the thorax he says:

"It is plain from the structure of the heart that the blood is passed continuously through the lungs to the aorta as by the two clacks of a water bellows to raise water. It is shown by the application of a ligature that the passage of the blood is from the arteries into the veins. Whence it follows that the movement of the blood is constantly in a circle, and is brought about by the beat of the heart."

Harvey's Relations with the Stuarts.

In the midst of his scientific observations and research Harvey acquired an influential practice. He had as patients Francis Bacon, the Lord Chancellor, the Earl of Arundel, and others. And who can say whether he may not have been consulted by William Shakespeare? He was appointed Physician Extraordinary to King James I on February 3rd, 1618. In the formal language of the time, "the King, as a mark of his singular favour, granted him leave to consult with his ordinary physicians as to his Majesty's health," promising him the post of Physician in Ordinary as soon as one should become vacant. This is highly significant as showing Harvey's very close relations with the King, whose promise, although not fulfilled in his lifetime, because there was no vacancy, was implemented in his son's reign, when Harvey became Physician in Ordinary to Charles I (1631). In the College of Physicians Harvey was appointed one of the four Censors in 1613, and was reappointed on several occasions. In 1627 he was nominated one of the "elects" (one of eight), who had the duty of selecting the president and of examining candidates for licence to practise. In 1628 he became treasurer of the College, and was re-elected as treasurer in 1629. The year 1628 is still more conspicuous as being the year of the publication of his great work *Exercitatio Anatomica de Motu Cordis et Sanguinis*.

In 1629, by command of the King, he accompanied James Stuart, afterwards Duke of Lennox (aged 17), on a Continental journey, resigning his office of treasurer of the College and getting leave of absence from St. Bartholomew's. They travelled in France and Spain (apparently not Italy, where, in the north, plague was virulent). An interesting sidelight on his scientific outlook is found in a letter from Harvey to Viscount Dorchester in which, describing the countries he passed through, he wrote:

"I can only complain that by the way we could scarce see a dog, crow, kite, raven, or any other bird, or any thing to anatomise, only some few miserable people, the relics of the war and the plague where famine had made anatomies before I came."

On his return to England he renewed his interest in the College of Physicians. In 1631 he was appointed Physician in Ordinary to King Charles I, with whom he appears to have come into very close personal relations, accompanying him everywhere and joining in sport and social functions. Of the intimate terms on which he stood with King James and King Charles I there is abundant evidence in his life. More than once there are references to specimens—eggs and the like—which he showed to the King. He utilized his frequent hunting expeditions with King Charles for the purpose of dissecting deer; for example, he says:

"The game, during the three summer months, was the buck, then fat and in season; and in the Autumn and Winter for the same length of time the doe. This gave me an opportunity of dissecting numbers of these animals almost every day during the whole season. . . . I had occasion, so often as I desired it, to examine and study all the parts . . . because the great Prince, whose physician I was, besides taking much pleasure in such inquiries and not disdaining to bear witness to my discoveries, was pleased in his kindness and munificence to order me an abundant supply of such animals and repeated opportunity of examining their bodies."

Referring to the minute embryonic heart, he writes:

"I have exhibited this point to His Serene Highness the King, still palpitating. . . . It was extremely minute indeed, and without the advantage of the sun's light falling upon it from the side, its tremulous motions were not to be perceived."

And again, with reference to a young nobleman (the eldest son of Viscount Montgomery) in whose case the King was much interested, he writes:

"I carried the young man himself to the King that His Majesty might with his own eyes behold this wonderful case: that in a man, alive and well, he might without detriment to the individual, observe the movement of the heart, and with his own hand even touch the ventricles as they contracted. And His Most Excellent Majesty, as well as myself, acknowledged that the heart was without the sense of touch: for the youth never knew when we touched his heart except by the sight and sensation he had through the external integument. . . . We also particularly observed the movements of the heart, viz., that in the diastole it was retracted and withdrawn; while in the systole it emerged and protruded."

In 1633 he accompanied the King to Scotland when His Majesty was crowned at Holyrood, at the time when ecclesiastical difficulties were rife in Scotland and Janet Geddes threw her stool at the Bishop of St. Giles. During that visit to Scotland Harvey found time to develop his biological taste, visiting the Bass Rock, which he described in interesting and graphic terms.

In 1636 Harvey visited Germany, Austria, and Italy, apparently in the entourage of the Earl of Arundel, who went to Vienna as Ambassador Extraordinary to the Emperor Ferdinand. *En route*, he stopped at Nuremberg and tried (in vain) to convince Casper Hofmann, one of his leading critics, of the truth of his views by demonstration. A letter bearing on his visit to Rome describes him as "honest little Harvey whom the Earl is sending to Italy about some pictures for His Majesty"—an interesting sidelight on his quality and culture.

In 1639 he was appointed Senior Physician in Ordinary to the King. The civil war was just beginning and Harvey accompanied the King. At the battle of Edgehill, on October 23rd, 1642, he was placed in charge of the King's sons, Charles and James. Retiring with the King to Oxford, he was admitted to the degree of M.D. on December 7th, 1642. During his stay in Oxford, in addition to the usual professional work, he devoted himself to natural science, worked at anatomy, made many dissections, and was in close touch with men who were working there, including notably Highmore and Charles Scarborough. The latter was attached to Mertoun College, of which college Harvey was named Warden by Royal mandate in 1645. Scarborough was admitted a Doctor of Physic in 1646.

Later Years.

When Oxford surrendered in 1646 he returned to London, and thereafter retired largely into private life, living with his brothers Eliab and Daniel. His attachment to the College of Physicians was maintained. He was elected councillor in 1655 and 1656, and continued to hold the Lumleian Lectureship till 1656.

His last literary effort—the treatise on generation—was published in 1651. In that year he offered to build a library for the College of Physicians. This was formally handed over to the College in February, 1654. That same year the College sought to elect him president, but he declined on account of his age. In giving up the Lumleian Lectureship in 1656 he took formal farewell of the Fellows and presented his paternal estate in Kent to the College. He was succeeded in the Lumleian Lectureship by Sir Charles Scarborough, to whom he was attached by affectionate ties, and whom he had urged to come to London.

Harvey suffered much from gout, and the attacks became aggravated with the advance of years. He died at Roehampton in his brother's house on June 3rd, 1657, in his eightieth year—apparently from cerebral haemorrhage—and was buried at Hempstead, Essex, on June 26th, being followed to the grave by the Fellows of the College of Physicians "clothed in their gowns."

His devotion to the College of Physicians is further illustrated by the terms of bequest, which run:

"And first, I appoint so much money to be raised and laid out upon that building which I have already begun to erect within the College of Physicians in London as will serve to finish the same according to the design already made." And again: "Touching my books and household stuff, pictures and apparel, of which I have not already disposed, I give to the College of Physicians all my books and papers and my best Persian long carpet and my blue satin embroidered cushion, one pair of brass andirons with fire shovel and tongs of brass for the ornament of the Meeting Room I have erected for that purpose."

it was no less the purpose of its founders to cherish a kindly feeling among the members of the medical profession.

The Harveian Society was a direct offshoot from the older Aesculapian Club. Both were founded by Dr. Andrew Duncan, and both have flourished—and flourished abundantly—to the present time; nor is there indication of senility or decay.

The Aesculapian Club was established in 1773, and consisted exclusively—as it does at the present day—of Fellows of the Royal College of Physicians and Fellows of the Royal College of Surgeons. The Aesculapian Club, which was essentially a supping, or dining, club, was limited not only in numbers (ranging from 12 to 22 members in all), but also in funds. When, three years after its foundation, the members of the Aesculapian Club proposed to widen their interest and influence by presenting a prize for medical investigation, they found—canny Scots—that, by reason of the limited number of members, the presentation of the prize (although amounting only to some 5 guineas) would press heavily on the purses of its members. Accordingly, the proposition was made that, without infringing on the prestige of the select Aesculapians, a larger society should be instituted which would include not only Fellows of the Colleges but graduates of the University and men in practice in the counties adjacent to Edinburgh or attached to the naval and military services.

Thus our society had its birth in 1782—bearing apparently two baptismal names by which it was known indifferently—namely, the Harveian Society, or the Circulation Club. Judging by available documents it would seem at the beginning to have been more commonly known as the Circulation Club.

The initial roll of the club (1782) contained 23 names, including, of course, that of its founder, Dr. Andrew Duncan, whose portrait by Raeburn adorns the College hall, and, it is interesting to note, Dr. Nathanial Spens, whose portrait by Raeburn in the dress of the King's Body Guard for Scotland is well known to you, Mr. Benjamin Bell, Dr. Alexander Monro, Dr. Daniel Rutherford, and others which recall far-reaching connexions with the medical history of Edinburgh. The first president was very naturally Dr. Andrew Duncan, who thereafter assumed the office of secretary, which he held for forty-six years to the end of his life.

One sometimes thinks with envy—too hastily perhaps—of the leisure times which the profession enjoyed 150 years ago. Yet Andrew Duncan—immersed in practice, lecturing on the principles and practice of medicine, first outside and latterly within the University, founder and moving spirit of the Aesculapian, Harveian, and Gymnastic Clubs, institutor of the *Edinburgh Medical Journal*, and inspiring influence of the Royal Edinburgh Asylum, Royal Public Dispensary, and Scottish Horticultural Society—must have been not only busy, but possessed of superabounding health and energy.

How the Harveians of those days realized their purpose to "cherish a kindly feeling among members of the profession" may perhaps best be realized by two pictures drawn from the minutes of the society—both relating to Harveian Festivals held at a time when Great Britain was overshadowed by the fateful possibilities of the Napoleonic wars.

The first picture is from the Harveian anniversary of April 12th, 1815—less than two months prior to the battle of Waterloo, when Dr. Andrew Duncan, the septuagenarian secretary, was promoted to the degree of Doctor of Mirth and Social Glee. It is best described in the quaint phrasing of the bard of the society:

A Motion was made,
And all present were glad,
As our joys are so few, and our time is so fleeting,
That our vacancy in the chair, of Doctor of Mirth,
should be regularly fill'd up at our next meeting.

So for this situation,
Without hesitation,
As the time was so precious, the Preses did name
Our trustworthy Secretary, who, for humour and pleasantry,
through full half a century had acquired much fame.

Then next it was mov'd
And most highly approv'd
That the President, mentioning the candidate's qualities,
Should prepare his diplom; and, when next in this room
have him duly invested with all the formalities.

Yet, stop, say some, What's all the hurry,
Who is the hero of your story?
Who is the man that's done such wonders,
And thus has benefited hunders
Of generations yet to come,
Of countless myriads a vast sum?
I answer, neither Jew nor Turk
E'er had a hand in this great work;
And joy must glisten in your faces
And national pride add to its graces,
When I inform you that the man
Who's thus completed Harvey's plan
Is one that's here; for him I claim
Th' immortal fame, and now do name
Andream Duncan, virum gravem,
Moribus et vultu suavem,
Virum septuaginto annorum,
Dictum vulgo seniorem,
Sed abhinc to be styl'd majorem,
Because in mirth far juniorem
Than half the younkers now before him.

The Diploma was couched in the following terms:

DIPLOMA.

Sodalitas Edinburgena filiorum Aesculapii,
In GULIELMI HARVEI honorem instituta,
Ut in aeternum floreat inventum utilissimum,
Circulatio sanguinis,
Omnibus ad quos haec pervenerint
Salutem.

With all the rights of due decorum
Nunc in altissimum honorem,
Evectus sit Andreas Duncan,
Honestus vir, si talis unquam.
As to know him is to respect him,
So nos habemus much delectum,
Quod fausto tempore et loco
Cum risu, cantilena, joco,
He has, auspiciis Minervae,
Completed the great plan of Harvey;
Proving that sanguinem abire
A corde et ad cor redire,
And ita, rite, circumire,
By keeping heartsome, light and cheery.
So therefore "eum nunc creamus,
Statuimus et proclamamus,
Of mirth Magistrum et Doctorem,
Vel si libet Professorem";
And farther, nos auctoritate,
Invest him plena potestate,
"Quando libuerit, potandi,
Ludendi porro et jocandi,
Moestos vino medicandi,
Et ad risum fabulandi."

The diploma, held in the hand, was delivered in pronouncing the last words of the following address:

Senex venerande, magnopere laudande
Propter innatam tuam amoenitatem,
Et propter virtutem minime hirsutam,
Cui, vita bene acta, senectus est facta,
Vere jucunda.
Doctrina ornate, honore onerate,
Probis probate, omnibus grate
Qualicunque aetate.
Accipe honorem, valde decorem,
Minime quem volumus, attamen quem possumus
Tibi donare.
Quo, tardus et serus abiens in coelos
Vivens hic, beate, bene, fortunate,
Laete, quiete, placide, complete,
Longum fruare.

The second picture is from the Harveian anniversary of April 12th, 1812, when the degree of Doctor of Merriment was unanimously conferred on the Rev. Dr. William Moodie, Minister of St. Andrew's parish church and professor of Oriental languages in the University, who, sadly enough, died within a few months of his promotion to the said degree. With glasses duly charged, the feelings of the Harveians towards their Pontifex Maximus are thus expressed:

To all good fellows be it notum,
That William Moodie, Virum Scotum,
Has proved his power in merriment,
Ut scripta multa nunc nos docent;
And to reward his sterling wit,
Quod felix nunc faustumque sit,
Doctor of Mirth, nos hunc creamus,
And to all laughers, commendamus,
In proof of which his health we drink,
Wishing him well, et nunc et hinc.

The Pontifex Maximus, having duly received this diploma, sent the following acknowledgement to the secretary:

With Aesculapians I did sup,
And with Harveians kept it up,
With dear Gymnastics oft was happy,
Our friends were kind, our liquor nappy,
And he who now the truth can tell,
Ne'er saw wa'r 'mang them than himsel'.

medical and academical matters. Can it be supposed that questions affecting Edinburgh escaped their consideration? Harvey knew the facts both from conversations with the King and by personal observations in the city itself. The proposals for the establishment of a College of Physicians can hardly have been excluded from Harvey's talks with Scarborough.

It is a fact of pathetic interest that the next serious move towards the foundation of the College of Physicians of Edinburgh occurred in 1657—the year of Harvey's death. The proposal had the sanction of the Protector, and would probably have been carried through but for Cromwell's death the following year. Between that date (1657) and the actual granting of the Charter to the College (1681) there was an interval of twenty-four years. During that period various forces and counter-forces were at work until all the difficulties were removed.

Edinburgh would seem to have had a renaissance of intellectual activity and culture. This was evidenced in the trend of young Scotsmen about 1660 towards the universities of Holland, France, and Italy. Of those who ultimately constituted the first twenty-one Fellows of the College of Physicians, approximately one-half went abroad for study—the majority to the University of Leyden, where later, in 1692, one of the first Fellows of the College—Archibald Pitcairne—became professor of medicine and was probably one of the teachers of the great Boerhaave. Those are significant points in relation to the final successful effort to found the Royal College. Presently a band of keen, zealous friends began to hold fortnightly meetings (conferences) in Robert Sibbald's house. Chief among those were Doctors Balfour, Burnet, Pitcairne, Sibbald, and Stevenson.

Sir Charles Scarborough and the College.

The appointment of Prince James, Duke of York, as High Commissioner to Scotland brought the Prince to Holyrood in 1679. In his train, as medical attendant, came Sir Charles Scarborough, who, in succession to Harvey, had become Physican to the King. The quickened intellectual atmosphere would prove congenial and interesting to Scarborough, who by this time was a member of Council of the Royal College of Physicians of London. Balfour he had already known as a pupil of Harvey. Towards Pitcairne he must have been drawn especially, for Pitcairne was keenly devoted to the teaching of Harvey, which later, both in Edinburgh and Leyden, he did much to disseminate. Sibbald, speaking of the Holyrood group, says: "Wee consulted with Sir Charles, and found him our great friend, and very ready to give us his best assistance, with the King and the Duke, who was by this time High Commissioner." Sibbald was successful in persuading the Earl of Perth and his brother to be friends to the enterprise, and he says, "they brought over many of the nobility to favour the design." To this happy combination of circumstances must be added a piece of good fortune that came to Sibbald, who relates it as follows:

> "I having recovered ane warrand of King James the Sixt of happie memorie [obtained by his uncle Dr. George Sibbald and left in his care], directed to the Commissioner and Estaits of Parliament then sitting in Scotland, dated the 3rd July 1621, with ane reference by the Parliament thereanent, to the Lords of Secret Counsell with power to doe therein what they thought fitt and that their determination therein sould have the form of ane Act of Parliament, dated the Second of August 1621, . . . produced this to his Royall Highness, who, as soon as he saw it superscribed by King James, said with much satisfaction 'he knew his grandfather's hand and he would see our business done,' and from that moment acted vigorously for us."

After unavoidable discussions as to its form, the completed Charter was duly written on parchment and the Great Seal was appended on St. Andrew's Day, November 29th, 1681.

The College is fortunate in having in its possession an engraving of Sir Charles Scarborough, who thus played so important a part in relation to its foundation. But I may be permitted to express regret that the original oil painting of the eminent benefactor, which was presented three or four years ago to the Royal College of Physicians of London, did not come to this hall. During the past year the College has had the good fortune to receive at the hands of one of its Fellows, Dr. Alexander Blackhall-Morison, an early portrait in oils of William Harvey himself, whose relations—direct and indirect—to the foundation of the College can no longer be overlooked.

The commemoration of the bicentenary of the Medical Faculty of the University of Edinburgh during the present year has rekindled interest in the history of the medical school. At those celebrations becoming tribute was paid from many sides to the supreme part played by the first Fellows of the Royal College of Physicians in the establishment of the Faculty of Medicine within the University. Four years after the granting of the Royal Charter the College of Physicians submitted a petition for the establishment of professorships of medicine; and in 1685 the town council of Edinburgh appointed Sir Robert Sibbald, Dr. James Halket, and Dr. Archibald Pitcairne to be professors of medicine within the University.

This first gesture, culminating as it did in the creation, in 1726, of the Faculty of Medicine, was fitting crown of the renaissance of intellectual activity in relation to medicine which emerged in Scotland after the union of the two kingdoms. It follows that whatever links may be suggested as attaching William Harvey to the Royal College of Physicians must, by the rules which govern lineal relationship, be regarded as attaching him no less surely to the Medical Faculty of the University. So far as my memory serves, during the recent bicentenary celebration of the Faculty, no suggestion of so significant a connexion emerged. I trust my fellow Harveians will not think me presumptuous in thus endeavouring to repair the omission.

The Harveian Society of Edinburgh.

There remains little time to dwell on another line of thought which I should gladly have developed in more immediate relation to our Harveian Society.

Alongside Harvey's pre-eminent genius as observer and interpreter of nature, there was a rich store of human qualities which attached him to his friends and fellows, and continues to arouse feelings of personal regard and affection. In making over to his beloved College his paternal estate at Burmarsh in Kent, with provision for a salary to the College librarian, and the endowment of an annual oration, he begged that the orator should exhort the Fellows of the College "to search out and study the secrets of nature by way of experiment, and also for the honour of the profession to continue mutual love and affection among themselves." It was the dual character of Harvey's manhood—his science, on the one hand, and his humanity on the other—which led to the establishment of our own Harveian Society and the Harveian Festival which, for the 139th time, we are holding to-night.

The objects of the Harveian Society, as primarily indicated, were threefold—namely, to commemorate the discovery of the circulation of the blood, to cherish a kindly feeling among the members of the medical profession, and to foster a spirit of experimental inquiry among the students at this school of medicine.

The third object of the society, embodied in the award of an annual prize to the author of the best essay on a subject announced by the society, has fallen into abeyance, and the laws read now as follows:

> *Law II.*—The Objects of the Society shall be to commemorate the discovery of the Circulation of the Blood, and to cherish a kindly feeling among the Members of the Medical Profession.
>
> *Law III.*—The Society shall endeavour to accomplish these objects by dining together annually on April 12th, the birthday of the illustrious Harvey; and in any other way the Society shall see fit.

To-night, in commemorating the discovery of the circulation of the blood, as enjoined by the laws, we do reverently place anew our wreath of laurel before the monument of Harvey. It was long the practice of the society to dine on the anniversary of his birthday. The changes which have inevitably occurred in relation to the school of medicine—the division of the session into terms with alternating holidays—have rendered the month of April unsuitable for a commemorative gathering. Hence it comes—without, so far as I know, any formal change of the law—that, in place of dining together on April 12th, we meet to-day (July 2nd, 1926).

If the primary purpose of the Harveian Festival is to pay reverent homage to William Harvey, it is certain that

method of preparing vaccine has been described in the *Transactions* of the Royal Society of Tropical Medicine and Hygiene, No. 7, vol. xix.

By means of a stick of carbonic acid snow applied for from a half to one minute upon the lepromata or upon the anaesthetic macules a blister results, which if emptied twenty-four hours later contains a large number of the bacilli of Hansen. This method may also be used to confirm or to contradict the diagnosis of leprosy when it is doubtful.

The preparation of the leprosy vaccine is a very delicate process, and necessitates a long practice. When the blisters are formed on the patients with the CO_2 snow they must not be emptied until after a lapse of twenty-four hours. Thirty-six hours are necessary if it is desired to obtain a fair number of Hansen's bacilli. The serum taken from one patient with one special form of Hansen's disease is then mixed with the serum taken from other patients suffering from different forms of leprosy, and the whole mixture is kept in the incubator for from fifty days to three months at 36° C. Then a mixed culture of *Bacillus pyocyaneus* is added to the serum containing the Hansen's bacilli (previously rendered incoagulable by the addition of a sterile solution of 2½ per cent. sodium citrate). The whole is transferred to the centrifuge for twenty minutes, the requisite quantity of distilled water is added to the solution, the bacilli are counted, then washed with petrol-ether, and the vaccine put up in 2 c.cm. ampoules. An ampoule of 2 c.cm. contains five milliards of Hansen's bacilli and fifteen milliards of *Bacillus pyocyaneus*.

The conditions vary for each case according to the general state of the patient; but the average dose is two ampoules, to be injected into the veins weekly.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTION OF NEUROLOGY AND PSYCHOLOGY.

E. FARQUHAR BUZZARD, M.D., F.R.C.P., President.

DISCUSSION ON PITUITARY DISORDERS.

OPENING PAPERS.

I.—GORDON HOLMES, C.M.G., C.B.E., M.D., F.R.C.P.,
Physician, Charing Cross Hospital; Physician, National Hospital, Queen Square, W.C.

My aim in opening this discussion will be to give a general survey of pituitary disorders and leave it to those who follow me to fill in details. I am fully conscious of the difficulty of the task, for the hypophysis, or pituitary body, is a complex structure composed of several distinct parts of different origin and different function, and disease may involve all of these parts together, or any one or more of them at a time; again, it may produce either loss or excess of function. Further, recent investigations have thrown doubt on hypotheses which we have accepted as physiological facts; it may, indeed, be said that the physiology of the pituitary body is still in the melting-pot. Another difficulty in the subject is that whatever may be the normal functions of the hypophysis they are so closely related to the activities of other glands, and especially to those of the sex organs, that a distinction of the clinical symptoms produced by their disease is often not easy, or their interpretation is uncertain.

It will, however, be my aim to deal with the clinical manifestations only of pituitary disease, and to place before you mainly the practical applications of my own experience. I shall have to refer from time to time to recent experimental work, but I shall do so only when this is necessary for the recognition and treatment of pituitary disorders.

It is now generally admitted that the pituitary body has important influences on growth, on sexual development and activity, and on the general metabolism of the body, and that these separate functions depend on different parts of it. A secretion or hormone of cells of the anterior lobe stimulates the growth of bones and influences the development of the skin and of some visceral organs; the pars intermedia and the posterior lobe control the development of the sex organs, while carbohydrate metabolism is also influenced by the posterior lobe. The infundibulum, or rather the pars tuberalis that lies on it, is probably concerned with the secretion of urine.

The functions of the pituitary may be disturbed by many different types of disease. Tumours arising from its cells are probably the most common lesion in clinical practice, but it may be invaded by metastatic growths too. Then it may be injured by disease originating outside the sella turcica, as by tumours growing from the meninges or from Rathke's pouch; by the distended floor of the third ventricle in the case of hydrocephalus; or by syphilis or encephalitis in the region of the infundibulum. These extrasellar lesions may compress the gland, or produce effects by blocking the secretions from the posterior lobe that normally enter the cerebro-spinal circulation through the third ventricle, or interrupt the nervous connexions between the pituitary and the hypothalamus. In other cases there is an aplasia or defective development of the pituitary, owing to either congenital or mechanical causes, or the organ may undergo regressive changes. Finally, alterations in the size and functions of the pituitary may be associated with disease or functional disturbances of other endocrine organs, as in pregnancy, in castration or atrophy of the sex glands, and with disease of the thyroid.

The clinical symptoms of pituitary disease are generally divided into those due to overactivity of a part of the gland, producing the condition of hyperpituitarism, and those that result from loss or deficiency of some of its secretions, or hypopituitarism. This classification is probably the most useful that can be proposed in the present state of our knowledge. It is, however, as yet an unproved assumption that the secretions of the cells of an adenoma are identical with those of normal cells, and the gross pathological lesions that most commonly cause symptoms can scarcely have selective actions on one part of the gland only. Adenomata of the anterior lobe, for instance, necessarily compress other parts in addition to altering the functional state of the anterior lobe cells. Many clinical symptoms must therefore be regarded as those of a dyspituitarism or altered cellular function, or as the combined result of the abolition or defective activity of some cells or parts, and the overactivity of other cells or parts. For clinical purposes, however, it is still advisable to retain the terms "hyperpituitarism" and "hypopituitarism."

The best method of presenting the subject for discussion will probably be to describe to you some of the more important clinical features of pituitary disease, and the more common modes in which they are grouped together.

DISTURBANCES OF GROWTH.

The best known and most common form of pathological overgrowth is acromegaly, which, since Marie described it in 1886, has been known to be associated with an enlargement or a tumour of the anterior lobe of the pituitary. It is true that in a few of the recorded cases no tumour or other lesion of the hypophysis was found, but in these there may have been a similar growth or an overfunction of an accessory pituitary, the common presence of which in the neighbourhood of the main gland or along the course of the pharyngeo-cranial canal has been pointed out by Erdheim and others.

Benda originally showed that the characteristic lesion in acromegaly is an adenoma of the eosinophil cells of the anterior lobe, which usually deviates so little from the structure of the normal elements that we may assume the tumour produces a similar secretion; in other words, there is a physiological excess as well as an anatomical increase

ACUTE NODULAR LEPROSY ORIGINATING IN THIS COUNTRY AND CURED BY VACCINE TREATMENT.

BY

E. GRAHAM LITTLE, M.D., F.R.C.P.LOND., M.P.,

PHYSICIAN FOR DISEASES OF THE SKIN AND LECTURER ON DERMATOLOGY, ST. MARY'S HOSPITAL, LONDON.

(With Special Plate.)

MR. X., a Chinese student, aged 36, who had been six months in this country, was brought to me on May 14th by Dr. Sherwill Dawe, with the following remarkable history:

The patient had been under his care for some weeks, suffering from severe pain in the left arm from the axilla to the wrist. Local applications, but no medicine, were given until three weeks later, when an eruption of nodules came out quite suddenly upon the face, and later upon the body. These gave rise to no subjective symptoms; there was no itching or pain. Under the impression that the eruption was an urticaria, calcium lactate was given by the mouth, and no other medicine had been taken by the patient. The eruption spread rapidly over the trunk and hands, and a patch of infiltrated skin, approximately four inches by two inches, appeared near the wrist, and a similar patch of induration upon the back a little later. He was brought to see me ten days after the first onset of the rash. The photograph (Fig. 1) gives a very fair impression of the state of the face when I saw him on May 14th. The skin over the forehead and cheeks was studded with granulomatous nodules; the face was generally swollen, especially over the forehead and nose. A large number of granulomatous nodules and plaques of indurated reddened skin were also found upon the back and front of the trunk. Upon the left forearm there was a very prominent induration of the skin, with a typical dusky flush; the ulnar nerve upon this side was greatly swollen and tender. The patient was obviously acutely ill, but no rise of temperature had been noted. The glands were generally enlarged.

I told Dr. Sherwill Dawe that I regarded the eruption as a lepride, and I obtained his permission to show the patient at the meeting of the Dermatological Section of the Royal Society of Medicine on May 20th. My diagnosis was confirmed by the unanimous opinion of the members present.

In the discussion which followed, Dr. Sequeira mentioned a case with an acute outbreak—the only one in his experience—in a woman who came from South Africa. Dr. Macleod gave an instance under his care of a boy in whom an acute outbreak of nodules, practically covering the body within forty-eight hours, had occurred, but the patient had had a previous attack of leprosy two years before. Dr. Whitfield mentioned a case under Dr. Pringle in whom an acute leprous swelling of the face had come on within a few hours of an attack of malaria. Dr. Adamson pointed out the analogy between these cases and post-exanthematous lupus, which occurred after measles or other fevers in children who suffered from tuberculous glands. The rarity of such acute cases may be gauged from the fact that four medical men, with vast experience of skin disease, could each cite only one instance within their individual observation.

Further discussion ensued upon the measures to be taken, and it was again the unanimous opinion of the meeting that the prognosis was so desperate that the patient should be urged to take immediate steps to return to his home in China, if arrangements could be made for his transit.

Leprosy is not a notifiable disease in this country, and there is no adequate provision for the reception of such cases. Some years ago one of the members of the Section was confronted with an extremely difficult position, in which he sought the advice and assistance of his colleagues. A man suffering from leprosy had been living in lodgings in London. A lawsuit for damages, brought by the landlord, appeared probable, and this lesson of the very serious plight of a patient suffering from leprosy in England added to the urgency of the advice which I gave to Dr. Dawe, that the patient should leave England as speedily as possible, before his condition would prevent him from doing so.

Now comes the remarkable sequel. Mr. X. had the good fortune to come under the observation and treatment of Dr. James Hasson, whose very extensive experience of leprosy in Egypt enabled him to give a much more promising prognosis. The treatment adopted by Dr. Hasson is appended in a communication for which he is solely responsible.

The opportunities for seeing leprosy in this country are necessarily very limited, but I have had some exceptional opportunities of observing the disease in South Africa, the West Indies, and the Canary Islands. Some fifteen years ago I had the privilege of watching a case of leprosy under treatment by my colleague Sir Almroth Wright, who was giving small intramuscular doses of an emulsion of leprous tissue obtained from a tumour excised from the patient. Some improvement at first resulted from this treatment, but it was never very encouraging, and was abandoned. Several other attempts have been made with the same means, notably by Dr. Winkelried Williams, but the improvement has not been such as to recommend a wide adoption of the method. It is the general experience that the products of chaulmoogra oil have not fulfilled the hopes expressed by Sir Leonard Rogers in his Croonian lectures of 1924.

The astonishing results obtained in the case now under consideration can best be apprehended by comparing Fig. 2, after treatment, with Figs. 1 and 3, before treatment. I examined Mr. X. in October, and am happy to report that the nodules and the tumefaction of the skin of the face have completely disappeared, the nodules leaving no trace of their presence other than a slight deepening of pigmentation. The indurated plaques upon the back and forearm have also vanished, leaving only a deepening of pigmentation in the flaccid skin covering the site of the induration. The general health of the patient has improved beyond all recognition, and it would really seem that we have at last obtained an effective method of treatment of this dreadful disease.

COMMUNICATION BY DR. JAMES HASSON.

The patient mentioned by my colleague Dr. Graham Little was sent to me by Dr. Manson-Bahr last June. I have nothing to add to the above account of the patient, except that there was a specific rhinitis which made breathing difficult. His temperature was one degree below normal, and the large lepride of the forearm was in certain parts anaesthetic, and in other parts hypo-aesthetic.

I commenced vaccine treatment immediately, and after a series of injections of 23 ampoules, a majority of which were given into the veins, the lepromata described above, as well as the large infiltrated lepride, melted away.

I showed the patient to Dr. Manson-Bahr after this series of injections, and we agreed to let the patient have a rest of one month, during which time I gave him one or two injections a week of 2 per cent. solution of lecithin in olive oil, inasmuch as his urine contained an appreciable quantity of phosphates. He lost a stone in weight.

The vaccine injections were resumed about July 20th—four a week, then three a week, and finally two a week—in very small doses so as to avoid the strong reaction from higher doses.

The patient has had fifty-three injections in all of vaccine in small doses, after a special formula containing three milliards of Hansen's bacilli instead of five, and five milliards of *Bacillus pyocyaneus* instead of fifteen, in each ampoule—an alteration, as explained above, determined by the general health of the patient.

The present situation is as follows: All the lepromata of the face and the body have completely disappeared; the large lepride of the forearm has gone. The rhinitis is cured to such a degree that the patient breathes normally. The nasal septum is intact and there is no indication of destruction of the bones of the nose. The anaesthesia of the lepromata and of the lepride gave place during the first week of treatment to hypo-aesthesia. Both these symptoms have disappeared now and the hair is growing normally. Blistering of an old nodule shows in the blisters complete absence of Hansen's bacillus. The

hypophyseal disease. The resemblance to the obesity in eunuchs is certainly striking. Another argument in favour of the latter hypothesis is the case of a patient with hypopituitarism recently under my care, who had increased 4 st. in weight in six months, but lost most of his abnormal fat after a testicular graft. Peritz has published a similar observation in a hypophyseal dwarf.

The distribution of the fat is not in itself pathognomonic of pituitary disease; a similar adiposity results from genital defects and other pathological conditions, and occurs normally, particularly in families which incline to obesity. In the most common type the fat is laid down mainly on the breasts, abdomen, buttocks, the upper portions of the thighs, and over the pubis; but in other patients the increase is found chiefly in the lower limbs above the ankles, the trunk and the upper extremities being more or less free. Sometimes, however, there is a general adiposity.

Skin.

More or less characteristic changes in the skin usually accompany the obesity, but they occur also in the non-obese cases in which atrophy or non-development of the genital organs is the chief feature. It is usually soft, thin, and smooth, often practically hairless, and as a rule dry, though rarely scaly. The folds over joints and other regions may be obliterated, and to the touch it has the soft velvety feeling of childhood. In younger patients its colour is generally good, though many are anaemic, but in middle life it becomes thin and wrinkled, resembling the skin of old age. In acromegaly and other conditions associated with overactivity of the anterior lobe it is, on the contrary, thickened, firm, and rough, and often deformed by warts and small tumours of the fibroma molluscum type.

Simmonds has described an interesting condition, under the title "hypophyseal cachexia," which resembles in many respects the condition described in animals by Cushing and others after total removal of the pituitary. It results from a rapid destruction of the whole hypophysis, which in some of the published cases was due to extension of infection from the sphenoidal sinus. It is characterized by rapid emaciation, somnolence, amenorrhoea in women, polyuria, atrophy of the sex glands, anaemia, slow pulse and respiration, increasing muscular weakness, atrophy of the skin, and in some cases loss of hair and teeth. Some of the cases have improved on the injection of pituitary extracts, but finally ended in death.

Disturbances of the Sexual Functions.

As a rule sexual activity is depressed or lost in all forms of pituitary disease, and this is frequently the first symptom of which the patient complains. Some cases of acromegaly are exceptions: one of my patients begat a child when the enlargement of the pituitary was so great as to cause a serious degree of blindness by pressure on the optic chiasma, and I have recently seen a woman with unmistakable physical symptoms, including blindness of one eye and a temporal hemianopia in the other, whose periods have remained regular and normal during the five years the condition has existed. States of sexual overactivity have also been described in the early stages of acromegaly. In other hypophyseal affections amenorrhoea in women and impotence and lack of desire in men are almost invariably the rule, and often the first symptoms to attract attention. This is particularly true in the case of chromophobe adenomata of the anterior lobe which injure the pars intermedia and posterior lobe, with which the sexual functions are usually correlated; it holds, too, for most suprasellar lesions that compress the pituitary. It must be regarded as a direct consequence of destruction of the gland.

The state of the sexual organs naturally varies with the age at which the symptoms of the disease commence; when the onset occurs before puberty the penis and testes in the male, the uterus, the ovaries, and the external genitalia in the female, remain undeveloped and infantile, and no evidences of puberty appear. If the disease starts after puberty the sexual organs may retain their natural size, but frequently atrophy and regressive changes set in, especially in long-standing cases. Then the penis shrinks, the testes become small and soft, and often not tender to pressure. The uterus has often been found infantile in shape and size, while the labia and clitoris may atrophy too. This state is associated with loss of all manifestations of sexual function; in the female complete amenorrhoea exists, and none of the accompanying phenomena of menstruation occur, while the male never has erections, emissions, or other sign of sexual activity. A point of some importance in the diagnosis of pituitary impotence is the fact that it does not occasion the patient the worry or distress that impotence from other causes usually does; there is at the same time a complete lack of desire, and in the female absolute frigidity.

An absence or deficient development of the secondary sexual characters usually accompanies this genital atrophy. When the disease sets in before puberty the female breasts are small and contain little glandular tissue, but in adipose types they may be distended by fat. In cases in which the disease develops later in life the mammae may atrophy, though by no means always. In men collections of fat underneath the nipples often produce pseudo-mammae. The general shape and configuration of the patient is often striking, particularly in cases of pre-adolescent onset; in males the body is slight, often broader at the hips than at the shoulders, and frequently shows the tendency to waist formation which is more characteristic of the female. The limbs are long, the fingers slender and tapering, and the appearance lacks that muscularity which is normally typical of the young adult male, while the type of adiposity, with accumulation of fat on the buttocks and thighs and in the region of the breasts, exaggerates the female-like type of body. In young females the figure is frequently that of a child: the pelvis is narrow, the back straight, the thighs slender, and the pubic region undeveloped. In later life adiposity generally predominates; the abdomen is large and pendulous, the breasts soft and hanging, and irregular pads of fat around the shoulders, loins, and thighs distort the figure.

The amount and the distribution of the hair in the male are important diagnostic points. In the hyperpituitary syndrome there is often excess over the body, which sometimes is irregularly distributed in patches on the back, upper arms, and limbs. In hypopituitary states, on the contrary, hair is scanty and its distribution approximates to the female type. Youthful patients develop no beard or moustache, or at the most there is a soft down on the face. The trunk and limbs are hairless, the axillary hair is usually scanty, and that on the pubis has a horizontal upper limit as it usually has in the female. In patients in whom the condition commences after puberty the hair anomalies are less pronounced. Frequently, however, there is less than the normal amount on the face; many patients, in fact, state that while previously they had to shave every day, once or twice a week is now sufficient. The moustache is scanty and generally retreats from the sides towards the middle line, while the beard is represented mainly by fine hair along the lower margin of the jaw and up the middle line, the skin under the angles of the mouth being more or less devoid of it. The eyebrows are generally thin and there is frequently a deficiency of hair in their lateral parts. In women there are less striking changes; in juvenile cases the pubic hair may never grow, and it is often sparse in older patients. In all types and in both sexes the hair of the head is usually normal in amount, but in hypopituitary cases it is often dry, fine, and thin.

Metabolic Disturbances.

Glycosuria, as has been for long known, is often found in acromegaly, but it is a variable symptom, sometimes present, sometimes absent, regardless of diet or mode of life of the patient. Or it may be produced by a moderate intake of sugar. This glycosuria can be controlled by insulin as easily as that of pancreatic origin. On the other hand, as Cushing and his fellow workers first recognized, in patients with hypopituitary symptoms there is usually a marked increase of carbohydrate tolerance, larger amounts than 150 grams of glucose by the mouth being necessary to produce glycosuria. This test

of these elements. Dott and Bailey, in their recent study of hypophyseal adenomata, have come to the same conclusion.

As a direct result of the excessive secretion, or possibly as a result of it combined with changes in the activities of other ductless glands, an overgrowth of certain tissues of the body occurs. The most prominent increase in size is in the skeleton, leading to the characteristic changes in the face, jaw, and skull, as well as in the spine and in the distal segments of the extremities. The malar bones become prominent, the supraorbital ridges bulge owing to increase in size of the frontal sinuses, and the lower jaw enlarges, producing frequently a prognathism with the lower teeth projecting beyond the upper. Frequently the teeth of the mandible are separated widely, since they do not enlarge as the bone in which they are embedded.

The chief changes in the skull are an increase in bulk of the natural ridges and points of attachment of the muscles, but the common complaint that the patient requires larger hats as the disease progresses is in some cases due to a general increase in the size of the head. The chief vertebral change is the development of a diffuse upper dorsal kyphosis, but it is sometimes represented only by an unnatural prominence of the upper dorsal spines. Radiographic examination of the bones of the limbs generally reveals less change than might be expected, but the phalanges are often enlarged and exostoses on them are common.

It is to a thickening of the soft parts, especially of the dermis and subcutaneous tissues, that much of the deformity is due; the skin becomes thick and inelastic, and is usually so adherent to the tissues beneath it that it cannot be raised or pinched up in folds as in normal persons. This adds to the characteristic coarseness of the face, and gives the fingers their sausage-like or cylindrical appearance. Other soft organs enlarge too: the nose is generally large, coarse, and broad, the lips thick, and the tongue so massive that it seems to fill the whole mouth; the ears also increase in size. The visceral organs may also enlarge; a hypertrophy of the heart has been described, as well as enlargement of the liver, spleen, pancreas, and kidneys, but these changes have little or no clinical or pathological significance. In one case, on which I made a *post-mortem* examination, the walls of the intestines were considerably thickened, while the colon was enormously enlarged, its lumen being two or three times as great as the normal. This may be the explanation of a symptom I have seen in a few patients with acromegaly; they complain of severe constipation, but periodically pass motions of enormous size, probably because the intestinal contents accumulate in the enlarged bowel. Many of these patients have also excessive appetites.

Gigantism.

The acromegalic is characterized by overgrowth of certain portions of the skeleton leading to abnormal proportions, but in subjects who develop disease of the pituitary in early life a general increase in height and bulk may be the most prominent feature. Frequently growth in these cases continues beyond the usual period of adolescence. In the giant the normal proportions of the body are retained, or more commonly the limbs are abnormally long but well shaped. There are, however, often anomalies: the sex glands are sometimes underdeveloped and the secondary sexual characters poorly marked. There are many conditions that predispose to gigantism: some subjects are probably normal in every respect and mere "sports"; in others the excessive growth is connected with lesions of other glands, and especially the sex organs—among eunuchs, for instance, abnormal stature is not uncommon.

In some giants, however, the pituitary is undoubtedly at fault, a hyperplasia or adenoma of the anterior lobe, or possibly only a functional overactivity, providing the stimulus to skeletal overgrowth; but this is possible only before the epiphyses have permanently fused. There is now experimental evidence, too, that the anterior lobe of the hypophysis has an influence on growth, for Uhlenhuth has shown that tadpoles fed on it increase in size more rapidly and to a greater degree than controls, and Evans and Long have obtained similar results in rats by the intraperitoneal injection of fresh gland substance. The abnormally great stature sometimes seen in eunuchs and among the Russian Skoptzen, who in early life submit to castration, may be related to hypophyseal activity, for an increase in size of the anterior lobe, and presumably therefore increased function, is known to follow removal of the testes or ovaries.

The view that gigantism is acromegaly in early life cannot be accepted, as true acromegaly has been described even in childhood. There are, however, close relations between gigantism and acromegaly. Many giants develop symptoms of acromegaly in later life, and it is not unusual to find acromegaly appearing in persons of large build, even though they cannot be described as giants. Again, similar regressive changes occur in the two conditions; both the acromegalic and giant are usually at first strong muscular persons, but in both a progressive weakness, surprising in view of the size of their bodies, is liable to develop, and may progress to a final cachexia. In both, too, the sexual functions are depressed or in abeyance, and both frequently show the same apathy, indolence, lack of energy and interest, and narrowing of emotional life, though the giant is usually more infantile in his mental outlook.

Dwarfism and Infantilism.

Experimental observations have shown that injury or partial removal of the anterior lobe may, in young animals, lead to a lack of physical development, and clinical observations leave no doubt that disease of it in children or early adolescence may result in dwarfism, or an arrest of development with conservation of the normal adult proportions; or, on the other hand, to infantilism, in which growth is not necessarily stunted, but the morphological characters of infancy and an absence of sexual development persist beyond the age of puberty.

True pituitary dwarfism is not common, but I have had two cases under my care. Both were simply men in miniature, with fairly developed genitals and normal hair growth. In both the symptoms started in late childhood, and the associated features suggested suprapituitary growths; in one the shadow of a calcified tumour was present in radiograms of this region, and he became blind, the loss of vision extending from the temporal halves of the visual fields. In other cases the dwarfism is due to congenital absence of the hypophysis, as in the patient recorded by Peritz, or to its atrophy. One interesting feature of these cases is that, usually in the third decade of life, they become as it were prematurely senile; they lose weight, their skin becomes thin, dry, and wrinkled, and they may grow either bald or grey.

Infantilism is more commonly seen; here the stature is not necessarily short, but the general development is slender. The striking feature is the childlike configuration of the body, the infantile state of the sexual organs, and the non-development of secondary sexual characters, and usually an unbroken high-pitched voice. Obesity is a prominent feature of many of these cases, but this will be dealt with later.

Adiposity.

Cushing and others have shown that experimental damage of the pituitary, and especially lesions of the posterior lobe, may lead to the deposition of an abnormal amount of fat in the subcutaneous tissues as well as in the visceral organs. A similar adiposity is a frequent accompaniment of pituitary disease, no matter what its nature or the origin may be, provided it injures the posterior lobe; it is sometimes seen in acromegaly, in certain cases of gigantism, and in dwarfs, but it appears most characteristically in the state to which Fröhlich has given the name "dystrophia adiposo-genitalis." In addition to primary hypophyseal disease it may be produced by any lesion that interferes with the functions of the pituitary, as suprasellar tumours, chronic hydrocephalus with distension of the floor of the third ventricle, and syphilitic basal meningitis, especially congenital infection. Cushing originally attributed it to defect of the posterior lobe, and certain clinical observations point to the same conclusion; recent work, however, suggests that it may not be the direct effect of the pituitary lesion, but results from damage of adjoining centres in the base of the brain, or from the genital atrophy that usually accompanies

the lower temporal quadrants, owing to the fact that the fibres from the upper halves of the retinae decussate in the upper part of the crossing and are consequently liable to suffer first by pressure.

Associated with the loss of vision we generally find a progressing pallor of the optic discs, giving the ophthalmoscopic appearance of a primary optic atrophy. The discs, however, frequently retain their normal colour for a considerable time after defects in the fields of vision have set in, especially when these develop rapidly. Papilloedema, or swelling of the discs, is rarely seen in simple pituitary tumours, but it occurs frequently with extrasellar growths.

Ocular Palsies.—Diplopia, strabismus, and ptosis are not uncommon symptoms. One or more of the muscles supplied by the third nerve may be weak, or all, including the iris and ciliary body, are affected. The external rectus is commonly palsied, but in my own experience the fourth nerve generally escapes. It has been stated that these ocular palsies are found only when there is an intracranial extension of the pituitary tumour, or when the growth lies outside the sella turcica. They are certainly then more common, but I believe they occur even with intrasellar growths, which may bulge lateralwards and compress the ocular nerves, especially when the tumour has extended backwards and eroded the posterior clinoid process.

Trigeminal Pain.

Occasionally patients complain of pain and numbness on one side of the face, most commonly in the distribution of the ophthalmic or maxillary division of the trigeminal nerve, and examination reveals a defect of sensation in the area to which the pain is referred. These symptoms must be due to compression of the fifth nerve or one of its branches by the tumour; they probably never occur when the growth lies entirely within the sella, and consequently indicate an intracranial extension or a primary extrasellar lesion.

Anosmia.

Disturbances of smell are rare with pituitary tumours, but extrasellar neoplasms may produce them by compressing the olfactory tracts or the area olfactoria in front of the chiasma.

Cerebral Symptoms.

In view of the serious amount of compression which the brain may suffer in the case of a large pituitary tumour, and even more so in the case of neoplasms growing from the infundibulum and its neighbourhood, it is surprising that cerebral symptoms are so rare. Occasionally, however, a mild degree of hemiplegia, often indicated only by an extensor plantar reflex, is seen. It is due to compression of one of the cerebral peduncles, and consequently occurs most commonly with extrasellar tumours extending into the interpeduncular space. These may also damage the mesial aspect of the temporal lobe and produce uncinate attacks.

THE PITUITARY AND THE HYPOTHALAMUS.

I have already referred to the fact that considerable doubt has arisen within recent years on the direct relation of some of the functional disturbances we have discussed with disease of the pituitary.

Karplus and Kreidl originally showed that there exist in the hypothalamus centres which can, under experimental conditions at least, affect the activity of the sympathetic system, and later observers brought further evidence that this region of the brain is concerned in the regulation of temperature and metabolism, in the secretion of urine, in the control of sleep and in the functions of the sex glands. Erdheim first suggested that disturbance of the hypothalamus is the cause of many of the symptoms attributed to the pituitary, and Aschner and others have provided further experimental and clinical evidence in favour of this thesis. Several physiologists now maintain that, contrary to the view generally held, the pituitary is not essential to life, and that its complete removal may not be followed by the characteristic symptoms. It seems to be definitely established that polyuria and temporary glycosuria may be produced by lesions of the tuber cinereum, and some experimenters claim that even adiposity and regressive changes in the sex glands may result from injury of the base of the brain though the pituitary be intact.

Numerous clinical cases published within the last few years tend to substantiate these experimental conclusions. Diabetes insipidus and glycosuria have been found associated with lesions limited to the tuber cinereum; obesity has been observed in disease of these parts, and even a few more or less typical cases of dystrophia adiposo-genitalis have been recorded in association with encephalitis of the base of the 'tween-brain. It may be that the "pituitary" symptoms resulting from experimental injury or disease of the base of the brain are really the result of blockage of pituitary secretions that normally reach the cerebro-spinal fluid through the infundibulum; further investigations are necessary to settle this point. On the other hand, as Abel suggests, the symptoms that follow hypothalamic lesions may be due to injury of the pars tuberalis of the pituitary which surrounds the infundibulum and extends on to the base of the brain.

Certain clinical syndromes must, however, be correlated with hypophyseal disease. There is now the clearest evidence that acromegaly is associated with an overgrowth of the eosinophil cells of the anterior lobe, and that its constitutional manifestations may precede any evidence of pressure on the brain. It also seems to me certain that disturbances of the functions and anatomical regression of the sex glands are direct pituitary symptoms.

The major clinical manifestations of pituitary disease are not common, but it is probable that certain minor disturbances of health which often escape notice or diagnosis are a result of disturbances of pituitary function. Unnatural obesity, stunted growth, and sexual weakness, for instance, may be of this origin, though accompanied by no other evidences of hypophyseal disease. Some disturbances at the climacteric may be due to imbalance of the activities of the pituitary and the sex glands, and in men certain changes not infrequently seen about middle life may have the same cause. It has been, for instance, suggested that the obesity, sexual impotence, and pathological somnolence of Napoleon at about the period of Waterloo were symptoms of a pituitary affection.

TREATMENT.

In some cases of pituitary disease the main aim of treatment is to alleviate the symptoms of glandular deficiency, in others it is to relieve the pressure which a pituitary tumour exerts on the optic tracts or other structures, or the headache that it causes.

When the most prominent symptoms are those which we regard as hypopituitary in nature, the most rational procedure would be to administer the active substance of the gland in suitable doses. It is definitely known that the intravenous injection of posterior lobe has an influence on metabolism, and that the intraperitoneal injection of anterior lobe stimulates growth in animals. Similar results, however, have not yet been obtained regularly in patients with symptoms of pituitary deficiency. Cushing, for instance, found that in undergrown children even the intraperitoneal injection of an extract every second day for months had no effect, though others have obtained partial success. It appears, then, that even intravenous or intraperitoneal injections give no constant results.

The efficacy of oral administration is even more doubtful. The notable success in the treatment of myxoedema by extracts of thyroid by the mouth has aroused the hope that other glandular defects may be relieved by similar means, and has created an actively advertised market for various glandular products. There is, however, no evidence I know of that pituitary preparations given by the mouth are absorbed, or that their active principles survive digestion and absorption. I have used them extensively, but I have never satisfied myself that any of them had the least effect in relieving the symptoms of pituitary deficiency. I am aware that others have been more fortunate, though their published results do not inspire very confident hopes. More may be attained by this method of treatment when we can be sure of obtaining a reliably active and accurately standardized preparation.

Other glandular extracts, and especially thyroid, have been employed. There is no doubt that, in some cases of

has been extensively employed as a diagnostic sign, and it is undoubtedly of use, though it has not the absolute value originally attributed to it. There are obvious fallacies in it, since the glucose may not be absorbed from the intestinal tract, or the renal threshold for sugar may be high. The investigation of the blood sugar curve after the administration of glucose either by the mouth or intravenously is a more accurate and more valuable method. In normal subjects the highest point of the curve is reached thirty or forty minutes after the glucose has been given, but Gray, Sachs, and others have found that when the pituitary is injured by experiment, or its functions interfered with by disease, the curve rises more slowly and remains up longer than normal.

In a series of blood sugar investigations made recently on fifty-six patients at the National Hospital this condition was found. In both acromegaly and hypopituitary states the form of the curve was the same, the highest point being reached late, sometimes an hour or more after the administration of the glucose, and it fell to its initial level very slowly. The percentage of blood sugar usually differs with the type of the disease; in acromegalics the resting or fasting sugar tends to be high, while when obesity and other signs of hypofunction are present the fasting blood sugar is small in amount.

Several recent observers have obtained glycosuria by experimental lesions of the hypothalamus only, and clinical cases have been recorded in which it occurred in disease limited to this region. Sachs, for instance, assumes that though it may have a modifying effect on carbohydrate metabolism, the pituitary alone is not responsible for the glycosuria. It has been shown, however, that the intravenous injection of posterior lobe extract can produce glycosuria in healthy persons and lower the tolerance for carbohydrates in states of hypopituitarism, and Burn has found that the simultaneous injection of posterior lobe extract with insulin counteracts the effects of the latter.

Numerous observations go to show that the *basal metabolic rate* is also lowered in hypopituitary states and raised in hyperpituitarism, but this is apparently not a constant rule. It has been attributed to secondary changes in other glands, especially in the thyroid, and to pressure on the tuber cinereum.

Polyuria and the clinical manifestations of diabetes insipidus have also been attributed to disease of the posterior lobe of the hypophysis. An excessive amount of urine is not, however, a common symptom in the more usual forms of pituitary disease, but diabetes insipidus is often associated with more acute lesions of this region, as basal syphilis and fractures of the base of the skull. Recent observations, both experimental and clinical, have thrown doubt on this explanation of polyuria, and many of them point strongly to its being directly due to injury of the hypothalamus; the temporary relief of the symptoms of diabetes insipidus by injections of extracts of the posterior lobe suggests that the pituitary may play a part in its pathology.

Blood Pressure.—My own observations show that in most cases of tumour of the hypophysis both the systolic and diastolic pressures are lower than normal. This is particularly so in the chromophobe adenomata associated with dystrophia adiposo-genitalis; here the systolic pressure often does not rise above 100 mm. of mercury.

Somnolence is not an infrequent symptom in pituitary disease, especially in adipose patients with evidences of hypopituitarism. In these we occasionally observe a tendency, similar to that found after epidemic encephalitis, to sleep excessively by night, and to drop off into sleep at any hour of the day. This is a true and perhaps a wholly natural sleep from which the patient can be easily wakened, and must be distinguished from the stupor with slowing and obfuscation of the mental processes that occurs with cerebral tumours and other lesions that raise intracranial pressure. It is most probably not a direct pituitary symptom, as a series of extremely interesting observations have within recent years demonstrated the existence of a centre in the neighbourhood of the third ventricle which controls or regulates sleep. This region is, of course, frequently compressed or otherwise damaged by hypophyseal tumours.

PRESSURE SYMPTOMS.

In a large proportion of all cases with clinical symptoms of pituitary disease the primary lesion is a tumour which either arises in the sella turcica or compresses the hypophysis within it. The tumours often attain a considerable size; cysts and other growths from Rathke's pouch are often as large as a walnut, while tumours of the pituitary itself frequently grow out from the sella and surround the base of the brain. Such tumours naturally compress or injure other structures and thus produce other symptoms.

Headache is variable. Many patients with even large pituitary tumours complain of little or no pain in the head, but in others it is one of the earliest and most prominent features. When the tumour lies entirely within the sella the headache is most probably due to pressure on its dural lining. It is most commonly referred to the temples, and described as a dull aching or a more severe bursting pain, which is often continuous for hours or days. When the growth originates outside the sella or extends from it the headache is a result of the general increase of intracranial pressure. Then it is usually more severe, but less constant, and is commonly referred to the forehead or behind the eyes; intense bouts occur in the early morning on waking, and are sometimes accompanied by attacks of cerebral vomiting, which is rare in intrasellar tumours.

Visual Symptoms.

As the optic nerves and chiasma lie in close relation to the sella it is not surprising that visual disturbances are among the most common symptoms of pituitary tumours. These vary from case to case, owing partly to the position of the tumour and the direction of its growth, partly to the variable anatomical relations of the chiasma to the sella turcica. Most commonly its anterior border lies on the sellar diaphragm, and consequently the upward pressure of a pituitary tumour involves first the optic fibres from each nasal half of the retina as they decussate in the chiasma. In other cases the optic nerves are longer and the chiasma more posteriorly situated, so that one or other of the optic nerves is first compressed. More rarely the chiasma is placed anterior to the sella, and then the pressure first affects one of the optic tracts.

Pressure on the chiasma alone produces the characteristic picture of a bitemporal hemianopia. A pure bitemporal hemianopia is, however, rare, for the decussating fibres seldom suffer alone, and they are all affected only when the tumour has reached a considerable size. The loss of vision may develop in several different ways. The earliest defect in the field is usually found in the periphery of one upper temporal quadrant; from here the blindness gradually extends towards the fixation point, and then invades the lower temporal quadrant. The other eye may be affected simultaneously or suffer later. In another type, which is probably as common, a scotoma, at first partial but gradually becoming more complete and larger, is found on the temporal side of the fixation point. This scotoma extends temporalwards, chiefly into the upper quadrant, until it reaches the normal, or more commonly the contracting, periphery. Frequently it spreads over the fixation point or for a short distance above or below it into the nasal fields. In other cases there is a general and gradually increasing contraction of the peripheral temporal field, or there may be merely a progressive diminution of vision throughout the whole temporal field.

When the chiasma is situated more posteriorly in relation to the sella, the tumour first compresses one or other of the optic nerves. The first clinical evidence of this is usually a diminution of central vision, which progresses, often rapidly, to blindness of the eye of this side. As the tumour increases in size it usually involves the chiasma next, producing a temporal hemianopia of the opposite eye; or the second optic nerve may be compressed, with the result that its central vision also suffers. In a patient with an anteriorly placed chiasma, a homonymous hemianopia to the opposite side may be the first visual symptom, but this is uncommon.

Tumours growing from the infundibulum or from the meninges produce similar disturbances of vision; when they lie above the chiasma the loss often commences in

FIG. 1.—Pituitary adenoma. Typical *x*-ray appearance of sella turcica. Note the characteristic even "ballooning." Film by Dr. Hope Fowler. J. W., female, aged 40; Deaconess Hospital, 1925; transphenoidal operation with marked improvement to vision.

FIG. 3.—Hydrocephalus due to pericerebellar adhesions. Ventriculography. Air outlines enormously distended anterior horns. The third ventricle is seen to dip into the flattened sella turcica. The dorsum sellae is eroded. Note marked atrophy at vault and gaping of coronal suture. J. S., male, aged 15; Deaconess Hospital, 1926; cerebellar decompression; adhesions freed. (Film taken with head in inverted position.)

FIG. 2.—Suprasellar cyst. Typical calcification in solid base of tumour. Slight erosion of posterior clinoid processes. (Film by Dr. Hope Fowler.) Female, aged 11. Private series, 1923. No operation possible.

FIG. 4.—Large right parietal glioma. Typical pressure atrophy with obliteration of dorsum sellae, thinning of floor and anterior clinoid processes and orbital plates; stippling of inner table over vault. (Film by Dr. Hope Fowler.) Male, aged 42. Private series, 1925. Wide decompression over growth.

E. GRAHAM LITTLE: ACUTE NODULAR LEPROSY.

FIG. 1.—Face, before treatment.

FIG. 2.—Face, after treatment.

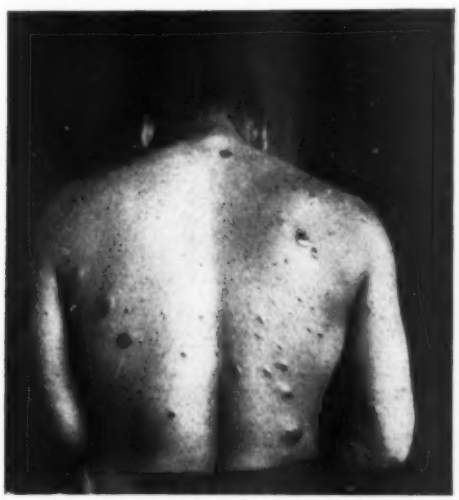


FIG. 3.—Back of trunk, before treatment.

the adipose type, thyroid in moderate or large doses diminishes weight, reduces somnolence and lethargy, and leads to a subjective improvement at least. It is probable that these effects are due to the direct action of the thyroid, but it is possible that it also acts by influencing hypophyseal cells that persist. The administration of thyroid to patients with large adenomata certainly diminishes the pressure symptoms in many cases; I have repeatedly observed an improvement in vision and diminution of headache under its use. Pituitary extracts are often given with it. Suprarenal, ovarian, and testicular preparations have also been tried, but there is no convincing evidence that they have any effect when administered by the mouth.

When the most urgent symptoms are, as is frequently the case, due to compression by a pituitary tumour of neighbouring structures, as the optic nerves or chiasma, there are only two efficient modes of treatment—surgery and radiology. Operation has now become a relatively safe procedure, though in my opinion it is as yet justifiable only when headache and other pressure symptoms are severe, or when vision is threatened. Unfortunately many cases are referred to the surgeon only when the tumour has attained a large size, or even burst out of the sella into the intracranial cavity; then only a temporary relief of pressure can be expected. The operation may be undertaken by the trans-sphenoidal or by the fronto-temporal route; personally, I have had more experience of the operation that approaches the tumour by elevating the frontal lobe of the brain, and I cannot but believe that it is the most effective, though its mortality may be slightly higher.

X-ray treatment has been extensively employed within recent years, especially by Béclère and other French physicians, and some striking results have been reported. It is claimed that this method is free from danger, and this is probably true so far as life is concerned; but I have seen an increase of blindness and other pressure symptoms, and other cases have been reported, after a few *x*-ray applications. This method certainly deserves further trial, especially in feeble patients with low blood pressure who do not stand surgical intervention easily.

II.—NORMAN M. DOTT, F.R.C.S.Ed.,

Surgeon, Royal Edinburgh Hospital for Sick Children; Assistant Surgeon, Church of Scotland Deaconess Hospital; Lecturer, Edinburgh University.

(*With Special Plate.*)

THE treatment of pituitary disorders, as of other diseases, demands of the individual who assumes responsibility therefor as complete a knowledge of the organ concerned as is possible. It is only on such a basis that treatment can be rationally planned and its results correctly assessed. As a surgeon concerned in the treatment of certain diseases of the pituitary gland, I propose to lay before you an outline of their principal features and the factors bearing on their treatment. In doing so I shall be obliged to review the known physiology of the gland, since it is only on a basis of normal function that pathological states become comprehensible. I shall then describe the pathology in relation to the endocrine function of the gland. Lastly, the lesions will be considered in their anatomical and surgical bearings.

In the first place, I wish to acknowledge my indebtedness to the clinic of Dr. Harvey Cushing at Boston, on the staff of which I had the privilege of acting two years ago, and whose rich mine of records I was permitted to explore. Dr. Cushing has been so kind as to send for your inspection most of the microscopic specimens which I have set out.

I.—PHYSIOLOGICAL CONCEPTIONS OF DISORDERED PITUITARY FUNCTION: HISTORICAL.

As in the case of the thyroid gland so for the pituitary we recognize a state of excessive activity (hyperpituitarism) and a state of insufficient activity (hypopituitarism) on either side of the zone of normal function. It should be of interest to review the salient points in the history of these conceptions.

Hyperpituitarism—Gigantism and Acromegaly.

Pierre Marie gave the first clear description of acromegaly as a disease entity in 1886. In the following year Minkowski pointed out the association of the disorder with a tumour of the pituitary gland. It is noteworthy that for some years the disease was considered to be an expression of pituitary insufficiency—a very natural conclusion from the presence of a tumour which obviously destroyed the gland. The failure of Horsley and others to induce acromegalic changes in animals by operative destruction of the hypophysis cast doubts on this theory, and led Tamburini, in 1894, to put forward the conception that acromegaly was an expression of hyperpituitarism. The relationship between acromegaly and gigantism was also recognized at this time. In 1900 Benda showed that the tumour concerned was an adenoma of pituitary origin, not a sarcoma or carcinoma, as it had previously been designated. Fraenkel, Stadelman, and Benda, in the following year, called attention to the hyperplasia of eosinophil cells in the tumour, and they regarded this finding as evidence of hyperpituitarism. A decade later the nature of the syndrome of pituitary insufficiency was clearly recognized from animal experiments, and, by contrast, additional strength was given to the view that acromegaly and gigantism were expressions of increased pituitary function. A recent analysis of 162 cases of hypophyseal adenoma from Cushing's clinic, by Percival Bailey and myself, revealed an absolutely constant relationship between the eosinophilic adenoma and acromegaly. The final proof was furnished by Uhlenhuth, Evans, and others, who induced actual gigantism in amphibia and rats by administration of pituitary anterior lobe substance. Evans has actually caused pituitary insufficiency in young rats by operation, and subsequently dispelled its symptoms by injections of a preparation of the anterior lobe.

Hypopituitarism.

We have no convenient synonym for the term hypopituitarism, as none of the familiar phases or types of the disease, such as hypophyseal infantilism, dystrophia adiposo-genitalis (Frölich), etc., are sufficiently representative of the disease to give it their name. Babinski in 1900, and Frölich in the following year, each described a single case of pituitary tumour associated with genital hypoplasia and adiposity. Neither observer, however, appears to have grasped the conception of pituitary insufficiency in relation to these cases. In 1906 Bartels gave a clear description of the syndrome, which he christened "dystrophia adiposo-genitalis"; he believed that a pituitary lesion had no causal relationship to the symptoms. Cushing, in 1909, reproduced this syndrome experimentally in dogs by partial hypophysectomy, and on this basis first clearly formulated the conception of hypopituitarism. A year later Aschner reported dwarfism as a consequence of similar experiments on young puppies, and thus demonstrated the relationship of infantilism to hypopituitarism. The lowered metabolic rate of pituitary insufficiency was shown both experimentally and clinically by Cushing and Boothby. The clinical and pathological evidence of a recent review of 162 cases of hypophyseal adenoma (above referred to) shows that all tumours or other destructive agents acting on the hypophysis, with the single exception of the eosinophilic growth, cause hypopituitarism.

It is interesting to observe that of the two syndromes hyperpituitarism was by far the earlier to be understood, and that its elucidation came primarily from the hospital ward and pathological laboratory. Hypopituitarism was not recognized until fifteen years later, and was then brought to light in the experimental laboratory. In both instances it is instructive to consider how the clinical, pathological, and experimental avenues have alternated and interwoven in advancing our knowledge, and encourages us to anticipate further progress along similar lines.

II.—THE PHYSIOLOGICAL FUNCTIONS OF THE PITUITARY GLAND.

In discussing the physiology of the hypophysis I shall dwell briefly on those functions of which we possess substantial proof, but shall touch also on some related phenomena of less certain origin. At the same time, in

consideration of the dogmatic statements often made as to anterior and posterior lobe symptoms, it may be well that we should inquire into the actual state of knowledge concerning the individual lobes.

The Posterior Lobe (Partes Nervosa, Intermedia, and Tuberalis).

Knowledge of the functions of this structure remain very scanty and uncertain at present. The activity of extracts of the posterior lobe in raising the blood pressure and in causing a transient diuresis was shown by Schafer with Oliver and Magnus at the outset of this century. Their observations have been followed by a host of others, demonstrating the potency of the extract in causing contraction of plain muscle in the uterus, eye, bladder, stomach, and intestines; showing its prolonged anti-diuretic effect, its action on the pigment cells of amphibia, its influence on capillary tone, and its quantitative effect in inducing the onset of parturition. It should be emphasized, however, that although these observations show that the extract has powerful pharmacological activities, and may be suggestive as to the purpose of the organ in the body, they actually prove nothing as to the normal physiological functions of the posterior lobe. The single proven function which I know of for this part of the gland is the regulation of pigment cells in the skins of certain amphibia. These animals remain pale after removal of the posterior lobe; they become temporarily black again on injection of the extract, and remain permanently black after successful grafting of pars intermedia tissue. In considering the possible purposes of the posterior lobe in the mammalian economy it is important to recollect that the total removal of this organ in the dog is unattended by any observable consequences to the animal. Many independent workers have confirmed this. At the present time it may be interesting to mention a particular instance in one of my own experiments. I observed a collie bitch from which the entire posterior lobe had been excised for several years. During this period she remained a perfectly natural and healthy animal. She had three normal pregnancies, terminating in due course in normal parturitions. The completeness of the excision was verified at subsequent autopsy by microscopic examination. I feel, therefore, that suggestions as to the possible functions of the posterior lobe should be made with great reserve at present. It appears to me quite unwarranted by known facts to attribute any definite symptom of pituitary disease to derangement of this structure.

The Anterior Lobe (Pars Distalis).

We have much more definite information concerning the normal activities of this gland. As already indicated, some of its functions were early suspected from clinical and pathological evidence in cases of acromegaly and gigantism. The probability that it was concerned with growth, with the development and maintenance of the functions of the sex glands, and with the maintenance of the normal metabolic rate, was strengthened by disturbances of these functions following its experimental removal. Experiments on the administration of the anterior lobe or its extracts remained somewhat inconclusive until, in 1917, P. E. Smith caused tadpoles, which had remained dwarfed after hypophysectomy, to grow again by anterior lobe feeding. Evans completed the evidence by similar experiments on young rats, employing intraperitoneal injection as the method of administration. The relation of the eosinophilic cells of the anterior lobe to these phenomena is rendered almost certain by their constant hyperplasia in clinical hyperpituitarism and their marked diminution or absence in the presence of hypopituitarism. It is of great importance to note that experimental hyperpituitarism in rats is always associated with cessation of sexual functions, just as in hypopituitarism. The sex glands would appear to be governed by a delicate balance of anterior lobe activity. True experimental gigantism has been induced by anterior lobe administration to certain amphibia and rats. In these particular animals natural growth does not cease abruptly, but continues slowly throughout their lifetime. In the human giant similar conditions exist. Before growth is complete he develops hyperpituitarism, his genital glands fail to mature, his epiphyses therefore fail to close at the normal age, and at the same time are stimulated to grow by hyperpituitarism; and, in fact, growth often continues until 30 or more years of age in such a case. We must again pay tribute to an early observer, for this is no new conception of gigantism. Tandler, in 1910, expressed the view that the eunuch is potentially capable of increasing in stature on account of the absence of puberty and its associated epiphyseal closure; that he actually does attain an abnormal stature is the result of hyperplasia of the pituitary, which constantly follows castration. He applied this reasoning to gigantism. Nothing resembling the changes of acromegaly has been reproduced by experimental administration of anterior lobe. This raises the question as to whether the secretion of the eosinophilic tumour cells may not be merely excessive, but also qualitatively abnormal.

"Pituitary" Symptoms of Uncertain Origin.

Adiposity is an inconstant, though often a striking, accompaniment of hypopituitarism. It varies with age, being much more frequent and conspicuous in the young, and decreasing both in frequency and degree as the age of onset of the disease advances. A comparison with the adiposity of castration and the recollection of the genital hypoplasia of pituitary insufficiency suggest that the symptom may be due to an indirect effect through the intermediation of the genital glands. On the other hand, some recent experimental evidence points to the possible existence of a fat-metabolism centre in the hypothalamic region of the brain. It is quite possible that implication of this region by the tumour may be responsible for adiposity. The cause of adiposity in pituitary disease remains uncertain at present.

Diabetes insipidus is a very inconstant accompaniment of tumours of the pituitary region. It may also follow encephalitis affecting this neighbourhood. It has been attributed on the one hand to lesions of the posterior lobe, and on the other to lesions of the adjacent hypothalamic region of the brain. A study of tumours of the neighbourhood indicates that diabetes insipidus occurs only when the growth is large enough to indent the base of the brain, but it does not always accompany this event. Experimental evidence strongly favours the cerebral theory. It is, however, very difficult to regard as mere coincidence the fact that injections of posterior lobe extract will arrest the polyuria of diabetes insipidus. We must leave this an open question at present.

Diabetes mellitus of acromegaly is also a very inconstant symptom. It may occur early or late in the disease. It appears to differ from typical diabetes mellitus in one character, being extremely irregular and often transient in its appearance. It may be of severe degree for a few days or weeks, and then completely disappear spontaneously, to return in weeks, months, or years, or not at all. When present it reacts to insulin treatment as does true diabetes. Two cases under Dr. Cushing's observation have died in typical diabetic coma. In one of these cases some of the islets of Langerhans show sclerosis. It is difficult, however, to associate an intermittent symptom with a sclerotic process. Again we must leave this question open.

"Increased Sugar Tolerance."—It has been observed that the obese subjects of hypopituitarism can ingest larger quantities of sugar without exhibiting glycosuria than normal subjects. The phenomenon is not specific for hypopituitarism, but may be observed in any form of obesity with lowered metabolism. I have observed that if the sugar is injected intravenously a glycosuria and blood sugar curve is obtained in hypopituitarism which does not differ from the normal. The inference is that the abnormality in the ingestion test lies in the rate of alimentary absorption and is probably an expression of the general metabolic depression. I would emphasize the gross fallacies to which sugar ingestion tests are liable. All such investigations should be made by the intravenous route, and further, a continuous injection regulated by grams per hour is essential.

Case IV.—Spiral fracture of tibia and fibula. Musculo-spiral nerve was involved. achylorhic jaundice. (a) After operation. Complete recovery of drop-wrist. week. (b) After operation.

(a) Fracture of femur in a girl aged 15. (a) After three weeks' treatment. Case III.—Fracture and catgut ligature. Note the slight projection of the proximal end (b) After operation. Complete recovery. of the distal fragment.

(a) (b)

CASE II.—Spiral fracture of femur in a girl aged 8. (a) After one week's treatment. (b) After operation.

(a) (b)

CASE IV.—Spiral fracture of humerus in a woman aged 30. She suffered from achyluric jaundice. The musculo-spiral nerve was involved. (a) At the end of one week. (b) After operation. Complete recovery of drop-wrist.

(a) (b)

CASE I.—Spiral fracture of tibia. (a) After nine days' ordinary treatment. (b) After operation.

(a) (b)

CASE III.—Fracture of femur in a girl aged 15. (a) After three weeks' treatment. (b) After operation and catgut ligature. Note the slight projection of the proximal end of the chief fragment.

other, causing little or no disturbance of function. In actuality definite acromegalic changes may occur in the presence of undoubted hypopituitarism, indicating that acromegaly is to be considered as a pathological state, as contrasted with a simple exaggeration of a physiological state.

Latent Hypopituitarism.

I use this term to designate a group of cases—"cases with pronounced neighbourhood but inconspicuous glandular symptoms," as Cushing described them in 1911. These cases, recognizable only from the effects of tumour pressure on the optic fibres, etc., occur in persons over 40 years of age. The lesion is usually a chromophobe adenoma. Their explanation is very simple. It has been pointed out that certain cutaneous changes and depression of sexual function are the only constant signs of hypopituitarism, and that adiposity does not supervene in later life. In the female the onset of amenorrhoea after 40 has no obviously pathological significance; and in the elderly male loss of sexual desire may not attract attention. The inconspicuous hypotrichosis and finely wrinkled skin are not likely to arouse suspicion in a patient over 40 years of age. A chromophobe adenoma large enough to involve the optic fibres has certainly compressed the hypophysis at an earlier period, and hypopituitarism is undoubtedly present in these cases. The recognizable symptoms of this condition are masked, however, by the natural phenomena of advancing years. Hence the expression "latent hypopituitarism" appears appropriate.

Adenocarcinoma of the Pituitary Gland.

This is an extremely rare affection. The few cases of which I have been able to find record were in patients over 45 years of age. The growth evinces a definite tendency to invade the bones of the cranial base and to spread between them and the dura. The fibrous dura seems to offer a barrier against intracranial invasion. The signs are those of progressive involvement of the cranial nerves. In one case all the cranial nerves with the exception of the auditory and facial on one side were completely interrupted. The growth may produce typical metastases in the liver and elsewhere.

IV.—Pituitary Disorders from the Anatomical and Surgical Standpoint.

When pituitary disorders are regarded from the technical surgical point of view, histological and endocrine grouping falls into comparative abeyance. The pathology must be rearranged on an anatomical basis. We must distinguish three main groups: (1) lesions of intrasellar origin, (2) lesions of suprasellar origin, (3) increased general intracranial pressure. Such grouping is essential to differential diagnosis and efficient treatment.

Tumours of Intrasellar Origin.

By this term I would imply those growths which arise within the sella turcica, though by the time they cause symptoms they have usually trespassed its limits. They are the pituitary adenomata, and are by far the most frequent lesions encountered. Let us consider the enlargement of such a tumour, the structures it successively encounters and the effects it thus produces.

It first compresses the soft and yielding parent gland, inducing hypopituitarism (acromegalic signs will appear in spite of this if the tumour happens to be eosinophilic). Distending the dural capsule of the sella it causes typical headaches. Distending the bony wall of the sella it causes a characteristic ballooning of this structure which is evident on the *x*-ray film. Squeezing itself outward between the two layers of the dura it displaces the cavernous sinuses and surrounds the internal carotid arteries; in doing so it may cause an abducens paralysis. It may thus reach Meckel's cave and so induce paraesthesiae and sensory loss in the upper divisions of the trigeminal nerve. Rupturing the dural roof of the sella it encounters the optic fibres, usually at the chiasm, and thus gives rise to characteristic bitemporal defects in the visual fields and primary optic atrophy. It next impinges on the base of the brain, inducing polyuria (probably), somnolence, and sometimes acute hyperthermia, which may cause death. Its further upward extension gradually obliterates and obstructs the third ventricle, causing hydrocephalus with signs of general increase of intracranial pressure. If it bulges outwards it may crush the oculomotor nerve against the sharp dural edge of the sella, or impinge on the inner surface of the temporal pole—whence olfactory hallucinations. Continued downward pressure irritates the sphenoidal sinus and induces congestion and catarrh of its mucous lining, evidenced by slight recurrent epistaxis and post-nasal dropping. I would especially emphasize here how even a tumour of moderate size will surround the carotid arteries and insinuate itself between the layers of the basal dura—facts which render its complete operative removal out of the question.

Tumours of Suprasellar Origin.

In this category I include those growths which arise from or near to the roof of the sella turcica, which enlarge primarily in the space afforded by the cisterna chiasmatis, though by the time they cause symptoms they have usually encroached on the sella and its contents by pressing down its roof from above. In their upward enlargement most of these growths pass behind the optic chiasm towards the third ventricle and interpeduncular space. They differ from the intrasellar tumours, not only in their origin, but in their relation to the subarachnoid space, and in the sequence in which they encounter the various structures which they press upon and the direction of this pressure. Thus polyuria and somnolence may appear as early symptoms. There may be a significant difference in the position and mode of progress of the visual field defects, since the pressure often comes from above and behind the chiasm. The appearance of the sella turcica as revealed by radiography differs entirely from that of the intrasellar growth. There may be erosion of the clinoid processes and flattening of the sellar outline by pressure from above, but never the even distension characteristic of the pressure from within of the adenoma.

General Pressure causing Hypopituitarism.

To those who are familiar with the striking appearance of the flattened sella, as disclosed by *x*-ray examination or at necropsy, in any case of long-standing intracranial hypertension, it cannot be surprising that definite signs of hypopituitarism may sometimes result from this cause. I have seen the pituitary signs so well marked in cases of hydrocephalus secondary to mid-brain tumour and to chronic adhesive meningitis that, at first sight, one would incline to regard them as instances of primary pituitary disease. An interesting recent example was that of a young woman who had a very large temporo-occipital meningioma. The skiagram showed well marked erosion of the dorsum sellae, and complete amenorrhoea had supervened. Normal menstruation returned immediately after removal of the growth, and has remained regular since. In such cases careful inquiry will usually reveal that the hypopituitary symptoms were of comparatively late onset, while the presence of definite signs of involvement of a region distant from the sella will deflect the diagnostic search in the correct direction.

V.—Differential Diagnosis.

A definite differential diagnosis between pituitary lesions of intrasellar, suprasellar, and distant origin is almost always possible. Its importance cannot be overestimated, since the most efficient operative treatment of the three groups differs very materially, and since an incorrect surgical approach may not only be inadequate but highly dangerous. The diagnosis of a tumour in the neighbourhood of the pituitary is usually very obvious, and does not require further discussion here. Some factors in the differentiation of these growths may, however, be of interest.

The age of the patient may be of assistance. Adenomata are extremely rare before the fifteenth year, and quite uncommon before the twentieth. The suprasellar cyst is frequently encountered in young children, and the vast majority manifest themselves before the age of 30. The

III.—Pituitary Disorders in Relation to Disturbed Endocrine Function.

Having reviewed the known functions of the pituitary gland, we may now correlate the various pathological lesions of the organ with the train of symptoms due to disordered glandular activity which they engender.

The evolution of our knowledge of disease of any organ is usually characterized by a period in which isolated symptoms and numerous clinical and pathological types are described, and they tend to accumulate into a complex and chaotic mass. Finally, scientific investigation succeeds in correlating and arranging this mass into a much simpler and clearly comprehensible form. I hope to show that such simplicity of conception is applicable to pituitary disorders. Its outline was clearly delineated in Cushing's *Disorders of the Pituitary Gland* in 1911.

We have to deal with two main types, between which a borderland will be recognized. The eosinophilic adenoma accompanied by hyperpituitarism constitutes one main type; the chromophobe adenoma and all other lesions which destroy or compress the hypophysis, accompanied by hypopituitarism, constitutes the other. Between these a smaller group, characterized by a mixed adenoma and by mixed hyperpituitary and hypopituitary symptoms, is distinguished.

The Eosinophilic Adenoma and Hyperpituitarism.

The *eosinophilic adenoma* possesses the characters of a true neoplasm in its loss of architectural arrangement and in definite modifications of its component cells, both as to form and relative proportions. The eosinophilic cell preponderates and shows considerable variation in size and shape. Rarely it is exclusively present. More frequently there is a proportion of chromophobe cells, and they resemble those of the normal gland, though showing some variation in size and form. The supporting stroma may be extremely scanty or quite dense, according to the proliferative activity of the particular tumour. Thus the growth may be almost self-limiting or may cause a rapidly enlarging tumour. The presence of the eosinophilic adenoma in acromegaly and its absence in hypopituitarism are absolutely constant.

Pathological hyperpituitarism is first manifested by general overgrowth if the patient is still within the growing period. Growth persists beyond the normal limits both of age and stature, and gigantism results. It is accompanied by acromegalic changes, and these changes usually become pronounced at a later period. If, as is more frequent, the state first appears in adult life, acromegaly alone ensues. Its earliest symptom is usually a fibrous hyperplasia in the subcutaneous tissues of the fingers, lips, nose, and ears, followed by similar changes in the tongue, internal organs, and nerve sheaths. Overgrowth of the bones of the face and hyperostosis of the vertebral column, ribs, and limb bones follow. The metabolic rate rises progressively, though never so markedly as in hyperthyroidism. Loss of sexual function is constant, but may be comparatively late in onset. Hypertrichosis and glycosuria are inconstant and somewhat infrequent signs. In the later stages toxaemia, presumably the consequence of continued excess of the pathological pituitary secretion, dominates the picture, inducing asthenia and often emaciation.

The Purely Destructive Lesions and Hypopituitarism.

In this category we have to deal with a variety of pathological conditions, which are here grouped together because they are all associated with hypopituitarism by reason of their injurious effect on the pituitary body. Among them are numbered the chromophobe adenoma, the suprasellar cyst of Rathke's pouch, and various other suprasellar growths, such as meningioma, cholesteatoma, glioma, etc. Hydrocephalus may compress the hypophysis by forcing the brain down into the sella turcica; and, indeed, chronically increased intracranial pressure from any cause—for example, a large tumour at a distance from the sella—may induce hypopituitarism in the same way. Of these causes the chromophobe adenoma and suprasellar cyst are by far the most frequent. The suprasellar cyst is a simple squamous epithelial neoplasm derived from the primitive tubular outgrowth from the buccal ectoderm from which the epithelial portion of the pituitary body takes origin. Its base, lying just over the sella, is composed of a solid mass which projects in wart-like processes into the upper cystic portion, which occupies the interpeduncular space. The solid portion is usually calcified. The growth is of the nature of an adamantinoma.

The *chromophobe adenoma* is selected for special description in order to contrast it with the eosinophilic adenoma. The chromophobe tumour consists of a mass of cells which are devoid of specifically staining granules. They differ considerably from the fully developed chromophobe cells of the normal gland, being of a more or less embryonic type. They are usually elongated or columnar in form, but may be irregularly rounded. They are arranged either in acinar formations or quite irregularly. The cell type is uniform. Eosinophilic cells are absent (or practically so). The stroma varies, but tends to be scanty. The tumour is usually one of comparatively active growth.

Hypopituitarism, if its onset occurs during childhood or adolescence, causes retardation or cessation of growth resulting in some degree of dwarfism. The sex glands fail to mature, the epiphyses remain unclosed, and secondary sex characters do not appear. Thus the subject is physically infantile in every respect. Mental development is usually normal. When the condition arises during adult life the earliest symptom is invariably a depression of sexual function—an occurrence which is very clearly indicated in women by the onset of amenorrhoea. The only other constant sign is some degree of hypotrichosis of the limbs and trunk and of the face in men, together with a peculiar fineness of the skin. The cutis is thin, soft, and pliable, and in patients over 40 years of age the skin exhibits a characteristic fine wrinkling. The secretion of sweat is usually diminished. Probably a depression of the basal metabolic rate is also constant, but the finer degrees of variation are difficult to detect with certainty by clinical calorimetry. The metabolic rate falls progressively, but not nearly so markedly as in hypothyroidism. Adiposity is inconstant for all ages, but it is the rule and is most striking in the young; it rarely appears after the age of 40.

The Mixed Adenoma and Dyspituitarism.

The *mixed adenoma* possesses the general characters of the chromophobe tumour, but its cells exhibit some degree of eosinophilic granulation. The granules may be present as a thin ring at the periphery of each cell, or a few scattered but typical eosinophil cells may be present in a tumour chiefly composed of pure chromophobe elements.

Dyspituitarism or the mixed clinical syndrome is by no means uncommon. The patient who is somewhat overgrown, who has large bones and air sinuses, but who at the same time exhibits hypotrichosis, fine soft skin, and genital atrophy, is quite familiar. Less common perhaps is the combination of definite infantilism with acromegalic thickening of the fingers, lips, and nose. It is notable that the degree of eosinophilia in the mixed adenoma is constantly reflected by the degree of pathological hyperpituitarism in the associated mixed syndrome.

When we look for an explanation of these definite glandular syndromes, we find it in the histological type of the tumour. All the adenomata are exactly similar in their gross anatomical appearance and in their pressure effects, and all destroy the normal pituitary gland. The eosinophilic cells are the distinguishing feature of the particular tumour associated with clinical signs of pathological hyperpituitarism, and it is reasonable to assume that these cells are responsible. It is interesting to reflect that the eosinophilic tumour most closely resembles the normal anterior lobe and represents its most highly specialized cell form; it might be expected to secrete something resembling the normal anterior lobe hormone. No specific secretion would be expected from the chromophobe adenoma, which represents the least specialized cell type and usually attains only an embryonic phase of this cell. It has been indicated that good reasons exist for suspecting that the secretion of the eosinophilic neoplasm may be qualitatively abnormal as well as excessive, hence I have used the term "pathological hyperpituitarism." The mixed adenoma and dyspituitary syndrome strongly supports this view, for were physiological hypopituitarism and hyperpituitarism present they should tend to equalize each

aperture under the influence of normal intracranial pressure, and it will then slowly descend. Convalescence is usually smooth, and the patient is able to leave hospital in ten or fourteen days. Patients frequently notice the improvement of vision so soon as they recover consciousness. The results in the restoration of vision are often dramatic (Fig. 5). The post-operative prognosis is difficult to give at present. Formerly from five to eight years of freedom from symptoms could be expected. To-day *x*-ray treatment is found to have a very powerful influence on these adenomata, and it is to be anticipated that the duration of benefit after operation will be greatly prolonged by this means. In exceptional cases the transfrontal operation as described below may be carried out as an adjunct to the transphenoidal procedure for an adenoma in which there is evidence of a large intracranial protrusion which will not descend satisfactorily into the decompression. In the event of recurrence of visual symptoms the fibrous tissue which eventually forms around the extruded growth may be freed by a second transphenoidal operation and further extrusion thus permitted, or a further portion of the growth may be removed by a transfrontal approach.

The Suprasellar Tumour.—The primary factors which dictate the mode of surgical attack on these tumours are their relation to the leptomeninges and the possibility of their total removal. As already indicated, these neoplasms grow primarily in the cisterna chiasmatis. As they enlarge, therefore, they distend this portion of the subarachnoid space and remain surrounded by the leptomeninges, so that the outer layer of the pia-arachnoid membrane lies between the growth and the base of the skull. An approach from below would necessarily involve the opening of the leptomeninges and subarachnoid space under possibly septic conditions before the tumour could be reached. This consideration alone renders a transphenoidal operation out of the question for a tumour originating above the sella turcica. The second factor which demands an approach from above is that a proportion of suprasellar growths are amenable to complete removal. While the adenoma is a soft diffuse neoplasm, and insinuates itself between the layers of the basal dura, the suprasellar tumour is usually of a more circumscribed character, and lies entirely within the dura. Frequently it cannot be completely extirpated on account of its size or its relation to important structures. Nevertheless, this should be the ideal of its operative treatment, and has been successfully accomplished in a proportion of cases. Ample access to the region of the optic chiasm and interpeduncular space is essential, and can only be provided by an approach from above. Various operations have been advocated for exposure of this region—transfrontal, fronto-temporal, and temporal. That which has given the most satisfactory results and is now employed by the majority of those experienced in this field is the transfrontal procedure. An osteoplastic flap is elavated from the right frontal bone (in the absence of special indications for a left approach); the flap hinges in the temporal region. The dura is separated from the roof of the orbit and incised along the lesser wing of the sphenoid and outer edge of the cribriform area. Elevation of the frontal lobe, protected by its dura, now gives excellent access to the hypophyseal region. If possible, the tumour or cyst is removed completely. If this cannot be accomplished, considerable, though comparatively temporary, relief can be expected from partial removal.

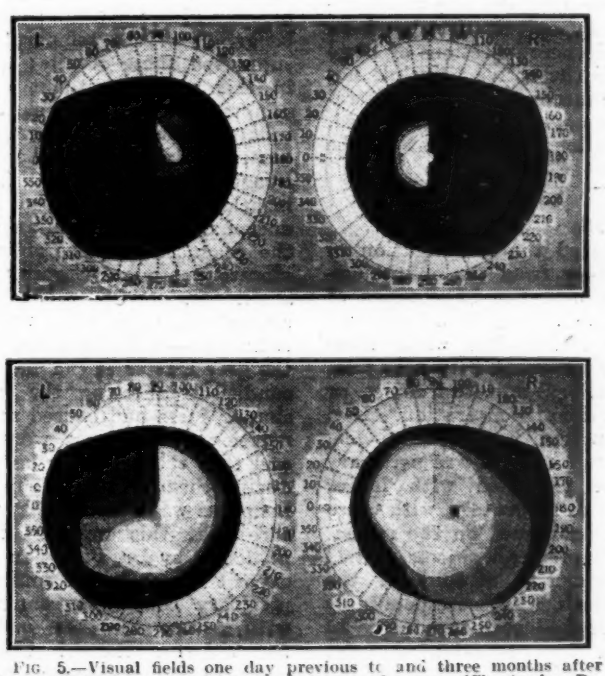


FIG. 5.—Visual fields one day previous to and three months after transphenoidal operation for pituitary adenoma. (Charts by Dr. H. M. Traquair.) R. S., male, aged 47; Deaconess Hospital, 1926; chromophobe adenoma, hypopituitarism. Subsequent radiotherapy by Dr. Hope Fowler.

The role of subtemporal decompression in cases of pituitary tumour is a very minor one. It is obvious from the position of the lesion and the fixation of the optic nerves to the base of the skull that no benefit to vision could be anticipated by decompression from above—rather the reverse. Since general hypertension in association with pituitary disease is usually due to a secondary progressive hydrocephalus, a decompressive operation fails to relieve it. It could only be reasonably used as a palliative for hypertension in a patient already hopelessly blind, and when the hypertension was due to the size of the growth without complicating hydrocephalus. These are very exceptional circumstances.

I do not wish to belabour the subject of the choice of operation unnecessarily, but I feel that it is a most important one. The pioneers of pituitary surgery naturally inclined to favour one or other method in their early endeavours, but, as already indicated, the recent views of those with greatest experience are unanimous in favouring the transphenoidal operation for the adenomata and the transfrontal operation for the suprasellar tumours. It is also their experience that a correct differential diagnosis can now be made in the vast majority of cases. When doubt does exist as to the nature of the lesion a transfrontal exploration is the only safe course, as the risk of exposing an intrameningeal tumour through the sphenoidal sinus would be extreme. The surgeon is responsible for the method which he adopts, and he must be familiar with the diagnostic features of the various lesions which may give rise to hypophyseal symptoms, in order that he may assess their significance and direct his procedure accordingly.

Radiotherapy.

Deep radiation has a powerful destructive influence on the neoplastic cells of the pituitary adenomata, but not on other tumours of this region so far as is known. That caution must be exercised in employing it as a primary measure in the treatment was shown by a trial of preliminary radiation in a series of cases at Cushing's clinic. Two of these cases indicated the danger of radiotherapy in the absence of a sellar decompression opening. In them such a degree of reactive swelling occurred in the tumours that the pressure symptoms became acutely aggravated, and immediate sellar decompression had to be carried out. In cases with very early visual symptoms a trial of radiotherapy without previous operation may be justifiable. Certainly, when the optic fibres are already seriously compressed, it should not be employed until a transphenoidal operation has been done. As a post-operative adjunct it is most valuable, and undoubtedly promotes the improvement which has followed the operation alone. There is every reason to anticipate that it will go far in retarding or preventing further enlargement of these growths. Several treatments are usually given on successive days before the patient leaves hospital, and this should be repeated at intervals of one or two months, according to the indications of the particular case. The visual fields are, of course, kept under frequent observation meanwhile.

Radium has been employed by some by means of an endonasal applicator. The results, so far as I know, have not been superior to those of *x*-ray treatment, and a number of complications, such as necrosis of adjacent bone, have been recorded.

chronology of the symptoms and the nature of the visual field defects will assist in many cases. The *x*-ray appearance of the sella turcica is of paramount importance. The even ballooning caused by the intrasellar adenoma (Fig. 1) is quite characteristic. The isolated clinoid erosions of the suprasellar cyst and its calcification which is present in 85 per cent. of these cases form a well marked contrast (Fig. 2). When the sella is affected by general intracranial hypertension there is erosion of the prominent clinoid processes and dorsum sella, but in addition other portions of the base and vault of the skull show evidence of pressure atrophy. The floor of the sella and orbital plates are thinned, and the inner table of the skull, especially over the vault, shows stippling and erosion (Fig. 4). It should be noted in passing that clinical signs of such chronic hypertension are not always very obvious; headache and vomiting are frequently absent.

To be sure, difficulties may arise in the differential diagnosis. For example, it may not be easy to decide between a suprasellar cyst or tumour without calcification in it and a cerebellar lesion with accompanying hydrocephalus. It is notorious that the neurological picture in some of these basal tumours may be very similar. Each of them is capable of causing hydrocephalus, and in the absence of calcification of a suprasellar cyst the *x*-ray appearances may be quite indistinguishable. In a recent case of this nature, in a child aged 15, in which the diagnosis of chronic adhesive meningitis about the cerebellum with secondary hydrocephalus seemed probable, there were such obvious signs of hypopituitarism and sellar erosion that an uncalcified suprasellar cyst with hydrocephalus could not be excluded by all ordinary diagnostic methods. Since the surgical approach in the former condition would be by the suboccipital route, and in the latter by a transfrontal procedure, a definite decision had to be reached. The matter was settled by ventriculography. The film (Fig. 3) has been taken with the head in the inverted position. The air, attempting to rise, has outlined the third ventricle against the base of the skull. The ventricle is seen to dip right into the flattened sella turcica, leaving but little room for the hypophysis—far less for a suprasellar growth! The initial and correct diagnosis was thus verified.

As experience of these cases increases, and diagnostic measures are improved and new ones evolved, the doubtful case is becoming rare.

VI.—TREATMENT.

It remains for us to consider how the patient afflicted with a tumour in the vicinity of the pituitary body may be benefited. Three means are at our disposal: (1) surgical operation, (2) radiotherapy, (3) glandular therapy.

Operative Treatment.

Indications.—The indications for surgical intervention are fairly clear. Amelioration of symptoms of glandular disturbance following operation has been recorded in a very small proportion of cases. For example, return of menstruation, and even fruitful pregnancy, has followed partial removal and decompression of the growth, presumably from relief of pressure on some remaining glandular tissue. In the case referred to in Fig. 5 sexual desire and potency have been recovered. Very exceptionally acromegalic changes have definitely receded after partial removal of the responsible tumour. Improvement of glandular symptoms has been rare, however, and as they alone are seldom a very serious inconvenience to the individual, they do not constitute an indication for operation at present. The persistence of severe headache and progressive failure of vision, on the other hand, are symptoms which demand relief more urgently. When the position is explained to the patient he is usually willing to submit to operation on these grounds. It is of the utmost importance that surgical treatment should be carried out reasonably early, as the risk is less at this time and as marked benefit to vision is assured. The frequent examination of the visual fields and acuity usually furnishes us with dependable evidence regarding the behaviour of the tumour. Operation should be strongly urged when the visual fields or acuity are progressively decreasing, and also in cases of any severity, if actual improvement in these respects is not occurring spontaneously.

The Adenoma.—The impossibility of total removal in practically all cases coming to operation must be clearly recognized in the first place. All those with large experience in this field of surgery are in agreement on this point. The impropriety of exposing the patient to what is necessarily a very hazardous attempt on the basis of so forlorn a hope is obvious. This being the case, we have to reckon with the likelihood of further enlargement of the growth after partial removal at operation. If this subsequent enlargement is allowed to occur in an upward direction the temporary benefit gained by a partial removal will be lost. The only means of preventing upward extension is to induce the enlargement to take place in a downward direction. This implies the creation of a sufficient breach in the bone and dura of the sellar floor, which can only be effected by an approach from below. In other words, a sellar decompression by the transphenoidal route is indicated. Since the pressure within the cranium is higher than that in the sphenoidal sinus the growth is partially extruded into the latter, and any further enlargement tends to take place in a harmless downward direction.

The fear of sepsis has deterred some from this operation, but extensive experience has shown this objection to be negligible in comparison with the advantages. It is true that a potentially septic field is traversed in the operation from below, but the relationship of the adenoma to the leptomeninges renders the potential sepsis of little practical significance. The tumour originates in the sella, below the cisterna chiasmatis of the subarachnoid space, and, in enlarging, it lifts the cistern away from the sella turcica. The tumour itself constitutes a thick barrier between the leptomeninges and the danger zone of the sphenoidal sinus. It is instructive to note that those who have recorded by far the largest series of pituitary operations are now in agreement that the transphenoidal procedure is the operation of choice for the adenoma. Hirsch (1926) and Frazier (1925) record excellent results, and apparently base their preference on the much lower mortality rate which the operation has given in their hands as compared with the intracranial approach. Cushing's preference is influenced less by the comparative mortality rate than by the degree of benefit which the operations confer. His statistics (1925) show a mortality of 7.38 per cent. in a total of 203 transphenoidal operations, and this figure has been reduced to 2 per cent. in his last fifty cases. The fatalities following thirty-five transfrontal operations have been 5.7 per cent. In his hands, therefore, there is little to choose between the two, and the risk in either case is indeed very slight considering the nature of the malady. At his clinic the much more durable benefit derived from the transphenoidal operation, as contrasted with the usually temporary relief gained by the transfrontal method in adenoma cases, has been most striking and is the important factor. Thus, from every point of view—the comparative simplicity of the technique, the low mortality rate, and the more permanent relief to the patient—the transphenoidal procedure is the operation of choice for the pituitary adenoma.

As performed by Cushing, the operation involves no external incision. The frenum of the retracted upper lip is incised and the anterior edge of the nasal septum exposed. A submucous resection of the septum is carried out. Between the layers of muco-periosteum thus separated a speculum is passed to the antero-inferior wall of the sphenoidal sinus. When the latter has been removed the bulging floor of the sella lies exposed. The floor is in turn removed, producing an aperture which varies from 10 to 20 mm. in diameter. The dural capsule of the tumour is now incised. As a rule, the soft, tense neoplasm partially extrudes itself at once through the incision. So much of the growth as is thus spontaneously forced out is removed with the spoon. Occasionally a tumour of unusually firm consistence will not come down at the time of operation. In these circumstances a fragment may be removed for examination, but no attempt should be made to clear out the contents of the sella. In the course of a few days or weeks the tumour will become moulded to the shape of the

played any part in their production. If the view Dr. Adie had put forward was correct, both assumptions were wrong; as Professor Schiff had said, it was not a matter of "either—or" but of "not only—but also."

Dr. H. GARDINER-HILL (London) referred particularly to the question of obesity and growth disturbances in children and their relation to pituitary disease. A considerable proportion of cases was suggestive of dyspituitarism, including a number of apparently the true Fröhlich type, in which there was no demonstrable evidence of a pituitary or suprasellar tumour. In over a hundred children with clinical features suggestive of pituitary disturbance, and in whom the carbohydrate metabolism was altered in the way which Dr. Gordon Holmes had mentioned as characteristic of pituitary disease, they found evidence suggestive of pituitary or suprasellar tumour in only about 10 per cent., and those were cases of the true Fröhlich type with lack of growth and genital hypoplasia. The tumour, though unverified, appeared to be suprasellar, judging by the changes in the optic discs and visual fields and the absence of any enlargement of the sella. There was also a high proportion in which the syndrome of obesity, overgrowth, and early development occurred without evidence of pituitary tumour. In these children the obesity was often extreme at the age of 14 or 15; they might weigh as much as 15 or 20 st. The condition very frequently developed after one of the infectious illnesses of childhood, and the obesity was first noticed during convalescence. It appeared especially liable to develop if the infectious illness occurred at the time of the second dentition or at puberty. In some cases there was undoubtedly a dietetic factor, but in the large majority there was no history of alteration in diet or of overfeeding or lack of exercise. The onset of obesity was accompanied by marked acceleration of growth, which continued until puberty, when it ceased. Puberty occurred early, at 11 or 12, and growth then ceased. If an *x*-ray examination of the bones was made, it was found that the bone development was advanced, and in many cases the epiphyses were already fused. The skeleton was large, and the condition appeared to be the opposite of that found in Fröhlich's syndrome, where there was delay in the appearance of the centres of ossification and late fusion of the epiphyses. The secondary sexual characteristics developed early, and in girls menstruation commenced before the usual age. It might at first be excessive; in a considerable number, however, it was normal, though after a few years many patients suffered from periods of amenorrhoea. Estimations of the sugar tolerance showed that the carbohydrate metabolism was abnormal; in some the tolerance was decreased, in others it was markedly increased. There was seldom any alteration in the sella turcica, though in a fairly large proportion it was frequently found to be rather below the average size. This syndrome was relatively frequent in the speaker's series of cases, while the type described originally by Fröhlich was comparatively rare. The question arose whether they were justified in attributing this overgrowth obesity syndrome to pituitary disturbance in the absence of neighbourhood signs. If there was any evidence of pituitary tumour the clinical features would fit in very well with those of the mixed type of adenoma described by Mr. Dott in his paper in the *British Journal of Surgery*, in which symptoms of the hyper- and hypo-pituitary syndrome were combined; but in the speaker's cases there was seldom any indication of tumour. One striking point of similarity, however, in the two syndromes was that in both cases the hyper- and hypo-pituitary symptoms developed concurrently. There is other recent work of interest in this connexion. Evans and Long, in their work on the intraperitoneal injection of anterior lobe extract in rats, not only found marked acceleration of growth with increase in size of the skeleton, but they also remarked on the large deposit of fat which was found in the injected animals.

Mr. GEOFFREY JEFFERSON (Manchester) dealt with the question of operative treatment, and more particularly the relative merits of the transfrontal and trans-sphenoidal methods of approach. As a mode of access for supra-pituitary lesions, for the Rathke pouch tumour, and supra- or para-pituitary endotheliomas, the transfrontal operation was obviously the method of choice, and there was no disagreement on this point. It was in the treatment of the true intrasellar tumour, the pituitary adenoma, that opinions had diverged almost to the point of bitterness. At the best, what could be done with the pituitary adenoma? Could they expect to remove it completely, or did they hope at most to relieve local pressure? There could be but one answer in general to this question. The pituitary tumour was not a malignant growth. It was a serious, and indeed a fatal, tumour only because of its position, which endowed it with the power of destroying sight, of paralysing the ocular muscles, of involving the trigeminal nerve by extension, of projecting upwards into the third ventricle and so interfering with cerebro-spinal fluid drainage, and of causing such local pressure damage as might give rise to uncinate attacks and the like. They could relieve these pressure effects by either of two methods, which were in their essence quite different. By the transfrontal operation the tumour might be directly attacked and as much as possible removed by curette and by suction. The beneficial results were here obtained by actual reduction of tumour mass. The trans-sphenoidal operation, on the other hand, was a local decompression, the floor of the sella being removed widely and crucial incisions being made in the inferior part of the capsule of the adenoma to allow of its extruding itself downwards, extracranially, where it could do no harm. The improvement looked for here was obtained by the reduction in intracranial tumour mass by its extracranial protrusion. The adenomata were on the whole of soft consistency, often cystic in part at least, and when the capsule was incised the adenomatous tissue escaped and could be removed. But no attempt was made to scrape the tumour out from the sella, and ill results were likely to follow if this was done, because a dam must be left behind to block the way from the nose through to the intradural space. The transfrontal operation would appeal most readily to the surgeon, because it was an osteoplastic operation of much the same type as that which he was often doing there, and elsewhere on the skull, for other conditions. The trans-sphenoidal route was an unfamiliar one to him, involving as it did a submucous resection of the nasal septum and the chipping away of the anterior wall of the sphenoidal air sinus; but it was not a very difficult matter with suitable instrumentation and help in the early days from specialist colleagues. The speaker had dwelt on the essentials of the two operations, because the objects of the trans-sphenoidal operation were not well understood generally in this country. Its disadvantages leapt to the mind immediately, the chief of these being sepsis. Cushing had repeatedly tried to dispel this bogy, and in his last series of fifty cases had only one death. While none of them were likely to rival these figures yet, they would get nearest to them by limiting the operation to its essential, a sellar decompression. It was obvious that the best results would occur with the soft tumours, and that the hard type, almost like tough thyroid adenomatous tissue, would not give equal results. But even these, as he had reason to know, were capable of slowly extruding themselves, and fortunately this type was distinctly uncommon. The opponents of this route were apt to point to massive adenomata extending high into the skull and ask what the trans-sphenoidal operation could do for such as these. Little was likely to be gained by argument on pathological curiosities, for which probably nothing could be achieved by any operation. The great advantage of the transfrontal route was that it allowed of a correction of the diagnosis, as, for instance, where the sella had been destroyed by a distended third ventricle in hydrocephalus, cases which they had all seen. So that where there was doubt the transfrontal route was unquestionably the one to follow.

Dr. ELIZABETH C. EAVES (Sheffield) said that Dr. Gordon Holmes and Dr. Adie had referred to the theory advanced by several workers on the subject that lesions in hypothalamic nerve centres might bring about conditions of infantilism and the train of symptoms occurring in hypopituitarism. She was interested in Dr. Adie's statement that either a glandular or a nervous lesion might be the cause of dyspituitarism, as her own observations inclined her to the same opinion. She mentioned two cases of

Medicinal Treatment.

Diabetes Insipidus.—The constant thirst and great frequency of urination associated with this malady are most distressing symptoms. They can be greatly relieved or even abolished by administration of pituitary posterior lobe extract. This is most conveniently accomplished by the intranasal spray; 0.5 to 5 c.cm. of the standard preparation used in obstetrical practice is employed daily or twice daily, according to the demands of the particular case. The effect is obviously of great interest in relation to the function of the posterior lobe, though it cannot yet be explained in terms of normal physiology. It is interesting to note that incidental pyrexia and simple lumbar puncture may occasionally cause temporary cessation of polyuria and thirst.

Pituitary anterior lobe and "whole gland" administration by various means has been extensively employed in clinical cases of hypopituitarism (and in many other conditions). A study of the literature on the subject is by no means convincing as to the efficacy of this treatment. Nevertheless, a sure foundation is being laid at present in the experimental laboratory, where very definite amelioration of the symptoms of artificial hypopituitarism has been obtained in mammals by intraperitoneal injections of large doses of anterior lobe substance. The active principle has not yet been isolated, and suitable means for its administration to the human subject have not yet been contrived. One can hardly doubt that before long such means will be at our disposal.

DISCUSSION.

Mr. M. L. HINE (London) treated the investigation of cases suspected of pituitary disorder from the ophthalmological point of view, and mentioned the importance of using various sizes of test objects, or in some cases coloured test objects. It was frequently found that while little change in field was present in one quadrant with a 10 mm. white test object, yet with a 5 mm. or 3 mm. test object, or with a red test object, there was definite alteration. If a smaller test object, such as the normal 5 mm. white one, was used at the start, and a defect found, it was necessary in making a prognosis to test the field with larger objects (10 mm. or 20 mm.), or, more accurately, with those numbered by the degree of angle subtended on the retina. It was evident that if, using the larger test objects, a field was obtained, there was not complete atrophy of the conducting fibres, and the prognosis was correspondingly hopeful after the tumour pressure had been removed. In addition to Mr. Dott's criteria for operation—namely, pressure symptoms indicated by headaches and increasing depreciation of visual fields—Mr. Hine urged the importance of taking very careful fields with graduated test objects. Walker's papers on this subject from Cushing's clinic should certainly be studied by all neurologists and ophthalmologists. Traquair's paper in the *British Journal of Ophthalmology* in 1917 would also repay careful study.

Dr. W. J. ADIE (London) said that the part of Dr. Gordon Holmes's comprehensive paper which he would like to amplify was that dealing with the relation of the pituitary body to the nervous structures that lay above it in the floor of the 'tween-brain (thalamencephalon). There was no need to emphasize the close anatomical connexions between these parts; the posterior lobe, the nervous part of the gland, was nothing more than a process from the floor of the 'tween-brain with which it was connected by stout bundles of nerve fibres in the stalk. The anterior lobe, the glandular portion, was continued upwards in the stalk by a process which certainly reached the region of the chiasma, sometimes extended to the tuber cinereum, and even further into the substance of the 'tween-brain. Secretions from the gland also found their way to the 'tween-brain through the stalk. The vegetative centres in the 'tween-brain therefore were bathed by glandular secretions, while the gland in its turn was subject to a nervous control from these centres, directly through the stalk in the case of the posterior lobe and indirectly through the sympathetic in the case of the anterior lobe. This close anatomical relation suggested an equally close physiological relation. Dr. Adie submitted that these two parts—the pituitary body and vegetative centres in the floor of the 'tween-brain—formed an intimately connected physiological mechanism which might be called the "pituitary-'tween-brain system." He further suggested that the same symptoms and syndromes might arise from disease strictly confined either to the glandular or to the nervous part of this system. As Dr. Holmes had said, Karplus and Kreidl first showed that various disturbances in the vegetative nervous system could be produced by experimental lesions in different parts of the 'tween-brain; others had obtained results which proved the existence in this part of centres the integrity of which was essential for normal temperature regulation, fat, water, and sugar metabolism, and activity of the sex gland. Destruction of the temperature-regulating centre, for example, rendered animals poikilothermic, so that it was impossible to cause a rise of temperature in them by infection or by any of the many methods by which fever might be produced experimentally in normal animals. Further, it had been shown that minute lesions confined to the 'tween-brain, and certainly sparing the pituitary body and its stalk, could cause glycosuria or polyuria and be followed by obesity and atrophy of the genitals; clinical evidence—for example, the behaviour of the temperature in encephalitis lethargica—supported these results; the sudden rises of temperature in this disease without corresponding increase in other symptoms were most easily explained by assuming that inflammation had affected the temperature-regulating centre (Economo). The speaker was convinced that irregular pyrexia might be the only symptom for many months in patients who ultimately developed the post-encephalitic Parkinsonian syndrome. In two of his cases the diagnosis of tuberculosis had been made in the premonitory stage. Again, moderate or extreme obesity, slight or severe polyuria, glycosuria and dystrophia adiposo-genitalis, were well known sequels of encephalitis lethargica—a purely nervous disease with a predilection for the grey matter in the mid- and 'tween-brains—and in other conditions affecting the infundibular region. These and similar facts had caused some to maintain that the above-mentioned symptoms were always of 'tween-brain origin and that the pituitary body never played any part in producing them. It had been said, for example, that diabetes insipidus was always of 'tween-brain origin. Dr. Adie was sure that this was not true. A case of his had been published by Dr. Piney, in which the diagnosis of secondary deposit of carcinoma confined to the posterior lobe of the pituitary body was confirmed *post mortem* in a woman with severe diabetes insipidus whose breast had been removed for cancer. One observer collected thirty-two cases in which lesions strictly confined to the posterior lobe caused polyuria. Those who denied that polyuria might result from uncomplicated pituitary disease asked why this syndrome was not more frequent in pituitary tumours, and why, with an increasing lesion, polyuria often ceased. The reason seemed to be that polyuria occurred when the posterior lobe alone was diseased; if both lobes were damaged there was no polyuria, and when disease spread to the anterior lobe it ceased (Hann). The pituitary body certainly played a part in the normal regulation of temperature, for it had been shown that extirpation of the gland or division of its stalk produced exactly the same results as injury to the centre in the 'tween-brain, and that injections of pituitary extract counteracted the effects of this extirpation. He asked if the temperature was lower than normal in these patients; if there was anything noteworthy about the daily variation in temperature; had any of them passed through an acute infection? Unequivocal experimental and clinical evidence existed in favour of the view that disease confined to the pituitary body could also cause obesity, atrophy of the genitals, and other endocrine disturbances. He was forced, therefore, to conclude that the symptoms under consideration might be produced by a purely nervous or a purely glandular lesion, and that the pituitary body and vegetative centres in the 'tween-brain worked together as equivalent parts of an endocrine nervous system. At present investigators seemed to be divided into two camps—those who maintained that the pituitary alone was responsible for certain symptoms, and those who attributed them all to disease in the 'tween-brain, denying that the pituitary

Mr. E. FINCH (Sheffield) said that he had performed the same operation for dislocation of the clavicle as Mr. Mitchell, but he used kangaroo tendon, and also made a new capsule over the joint with fascia lata. A professional footballer upon whom he operated was able to play again in six months.

Sir W. DE COURCY WHEELER (Dublin) said that he had given up operating on all these fractures for a number of years now. He used spinal anaesthesia for reduction and, if necessary, put a pin over the tendo Achillis to obtain a sufficient grip for traction. This was done on the fracture table, and plaster was then applied. He only operated upon cases which proved intractable to this treatment, and then he only replaced the fragments and treated the limb as he had outlined. In children, although reduction might be very imperfect, in two to three years the anatomical results had proved extremely good.

Mr. MITCHELL, in reply, said that he did not recommend routine operation upon fractures, but he thought it caused less disability if operation was performed in some cases.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RUPTURED SPLEEN: SPLENECTOMY: RECOVERY.

THE following brief account of a somewhat unusual case—namely, ruptured spleen, splenectomy performed after four days, with recovery, despite the supervention of empyema as a post-operative complication—may be of sufficient interest to merit publication.

John R., aged 9, was admitted to the Bury Infirmary on June 9th, 1925, at the request of his own doctor, who suspected the possibility of injuries to his ribs with intrathoracic complications.

Previous History.—The patient stated that, four days before admission to hospital, he fell from the window-sill at school, a height of about six feet, but arose unhurt. When he got home he felt dizzy and faint, and was put to bed, his own doctor being sent for, who gave him a bottle of medicine. He felt better the next day, but was still kept in bed. On the evening of the third day he became rather restless, and complained of vague abdominal pain. His removal to hospital was ordered early the following day.

Examination.—The patient was extremely restless and pale, pallor of the lips and finger-nails being very marked, and he complained of intense pain in the upper abdomen, which was referred to the left shoulder. Temperature 97° F., pulse 132 and very weak, respirations 32 and very shallow. There was marked tenderness all over the left hypochondriac and the epigastric regions, and movable dullness in the flanks was easily demonstrated. No fractured rib could be found clinically. I informed the parents that the child had a ruptured spleen, and advised immediate operation as an absolute necessity; to this they assented.

Operation.—The abdomen was opened by a right paramedian incision above the level of the umbilicus, and was found to be filled with free blood. The spleen, which was delivered through the abdominal wound, was torn at the upper pole (the tear extending through the entire thickness of the organ); it was removed, and the abdomen closed. Immediately on his return to the ward he was transfused with a pint of (citrated) blood and started on continuous rectal salines by the Murphy drip method.

Progress.—For two days his condition was very precarious. The salines, with 5 per cent. glucose and half an ounce of brandy to the pint of saline, were continued, and 1/2 c.cm. doses of pituitrin given hypodermically every four hours during the day and night until twelve doses had been given (during the forty-eight hours). On the third day he rallied, and was put on a sparing but nourishing fluid diet. Thenceforth he began to mend very rapidly; the diet was increased, and liberal amounts of minced raw sheep spleen, spread on bread, were given. On the sixth day after operation he developed a troublesome cough, and appeared ill. The pulse rate increased from 80 to 90 to 126 per minute, and the respirations from 28 to 46 per minute. He remained ill for four days, the temperature rising to 100° F. or more each night and falling to normal in the morning. There were profuse night sweats. Examination of the chest revealed loss of breath sounds and marked dullness over the left base. When aspirated, a syringeful of pus was drawn off.

Thoracotomy and Drainage.—Under local (novocain) infiltration anaesthesia a portion of rib was resected and the empyema drained. The nourishing diet was continued and stimulants were given. On the fifth day after thoracotomy the tubes were entirely dispensed with, and by the sixteenth day the wound was perfectly healed. After this the patient made a very rapid and uneventful recovery, and was discharged on July 30th in an excellent state of convalescence and with both the abdominal and thoracic wounds perfectly healed.

He came to see me recently for examination, and now, fifteen months after the operation, he is a fine healthy lad, with the left lung functioning fairly well. The only sequel I can find is a definite lateral curvature of the spine (scoliosis). The blood picture is perfectly normal, without even the faintest suggestion of a secondary anaemia.

I am extremely indebted to Dr. J. C. Turnbull of the honorary surgical staff, under whose care the case was admitted, for kindly permitting me to publish these details.

I. R. ROSIN, M.B., B.Ch., B.A.O.Univ.Dubl.
Senior House-Surgeon, Bury Infirmary.

TWENTY-TWO YEARS A CARRIER.

A SMALL outbreak of enteric fever—five cases with one death—occurred in Edinburgh in February, 1926. Milk was suspected as its cause, and the infecting supply was tracked down to a dairy in Dumfriesshire. Dr. W. S. J. Robertson investigated conditions in the dairy, and obtained blood, urine, and faeces from those engaged (three persons) in milk distribution. This material was subjected to bacteriological examination (enterica group) with the following result:

Mrs. X.—Serum, 1 in 50, showed complete agglutination against *B. typhosus*; 1 in 150 incomplete. Both faeces and urine were negative.

Mr. X. and D. X. (the other persons examined) gave negative results.

Mrs. X., showing this serum titre, was further examined. She stated that she had been in Pilton Fever Hospital in Edinburgh suffering from typhoid fever twenty-two years ago. This illness she had quite forgotten all about.

Further specimens of faeces in glycerin saline were obtained from her and sown in brilliant green peptone water, and plated to six MacConkey plates. From these plates three colonies were isolated, each of which was true to sugars, and agglutinated with Oxford serum to 1 in 1,000 and to her own serum to 1 in 1,250. This procedure was repeated a few days later with a similar result. She was removed from the dairy.

The interest here is the long period of time—namely, twenty-two years—during which she remained a carrier. The case is published at the request of Dr. John Ritchie, county medical officer of health, Dumfries.

W. LEONARD FORSYTH, M.B.,
Major I.M.S.(ret.), Bacteriologist to Dumfriesshire.

ERYTHEMA NODOSUM IN MEMBERS OF A FAMILY.

THE following cases are, I think, worthy of record, owing to the fact that three different members of the same family, living in the same house, contracted the same uninfectious disease.

On June 4th, 1926, I was called to a girl aged 12 years. She had a temperature of 100° F., pulse 110, sore throat, and acute pains down the lower part of her legs. I found a well marked purpuric urticarial rash, thickly distributed over both tibial regions. The patches were exquisitely tender to touch. With absolute rest the symptoms soon subsided.

When visiting her on June 10th I found her grandmother, aged 53, confined to bed with exactly the same symptoms—rash over the tibial region tender to the touch, sore throat, rapid pulse, and high temperature.

On visiting both my patients on June 14th I was astonished to find a man, aged 34, lying in bed with a temperature of 102.5° F., pulse 120, sore throat, and the same purpuric urticarial rash, distributed in patches over the tibial regions, but, in addition, there were very small patches over both elbow regions and also in the spinal region around the vertebra prominens.

The patients did well, with complete rest and salicylates as the main treatment, with the exception of the girl, who developed a systolic regurgitant murmur, which persists at the time of writing.

I confidently diagnosed erythema nodosum in each case, but on searching the literature on the subject I can find no record of this seemingly "infectious" nature of the disease.

D. GORDON ROBINSON, L.M.S.S.A.Lond.,
Surgeon, Hull and Sculcoates Dispensary.

hypopituitarism in which she examined the brain and the pituitary; in neither case was there a tumour. The first was a girl of 16, very adipose, of stunted growth and with an abnormal condition of the limbs. There was no lesion discovered in the brain, but the pituitary was about half the normal size and considerably fibrosed. The second case was one of infantilism resembling somewhat the Lorain type, and polyuria was present. The whole brain was very abnormal, the condition being the rare one of hypertrophic sclerosis. The pituitary was small, compressed by a dense capsule of connective tissue, and both anterior and posterior lobes were abnormal. In one case of epidemic encephalitis, with Parkinsonism and great wasting and terminating by respiratory failure, there were marked changes in the pars anterior of the pituitary which might account for the cachexia.

Apart from lesions in the hypothalamus and in the pituitary, there was possibly a third way in which hypopituitarism might be brought about—namely, by changes in other ductless glands. It was noteworthy that in children treated for diabetes with insulin for long periods the appearance was rather suggestive of dystrophia adiposogenitalis. She thought it worth while to ascertain if repeated injections of insulin in rabbits caused any alteration in the size and histological appearance of the pituitary. It should be mentioned first that the weight of the pituitary could be altered by several conditions; thyroid feeding was found to cause a slight decrease. After thyroidectomy, three weeks previously, the weight of the pituitary in one rabbit was more than double that in a normal animal. Pregnancy usually caused a hypertrophy of the gland. In five rabbits injected for varying periods of time with moderate doses of insulin the pituitary was above the average weight in every case. The average weight of the pituitary in fourteen control animals was 21.8 mg., that in the insulin-injected animals 30.4 mg. Histologically there were changes both in the pars intermedia and pars anterior. In the pars intermedia there was an enlargement and blurring of the cells, which sometimes merged into a mass of secretion. In the pars anterior the number of eosinophils seemed increased; the cells were larger than normal and confluent. The changes observed indicated increased activity of the pituitary. In a second series of animals insulin was given in about five times the amount in the first series. Cysts were present in the pars intermedia, and the cells of the pars anterior were chiefly chromophobe. These changes probably signified an exhausted condition of the gland. There was another way in which changes could be brought about in the pituitary. In examining the pituitary glands from rabbits in which Dr. G. A. Clark had cut the right vagus at varying intervals of time previously, she was struck by the large size of the glands in many cases, and was led to investigate the histological appearances. Up to the present the appearances found had not been compared with those of strict control animals, but the difference between the pituitary after vagotomy and that in normal rabbits was a marked one. Dr. Clark had suggested (in a paper now in the press) the possibility of inhibitory fibres in the right vagus to the islets of Langerhans. Removal of this inhibitory influence would cause increased insulin production. The changes found in the pituitary glands of the vagotomized animals were found to be very similar to those previously found in the insulin-injected rabbits.

Dr. C. G. IMRIE (Sheffield) described a case of polyuria following encephalitis lethargica which he had recently had the opportunity of investigating; the polyuria was controlled by injections of pituitrin. For diabetes insipidus pituitrin was not necessarily a specific, as J. B. S. Haldane had shown that the substance would control the polyuria following the ingestion of large quantities of water. In cases with a low blood-sugar figure the effect of pituitrin was to cause an increased rise in the percentage of blood sugar, thus rendering the growth more normal. Indeed, 0.5 c.cm. of pituitrin had a greater effect on raising the blood sugar than 50 grams of glucose. It was conceivable that in the pars tubalis there was a sympathetic nervous control of the pituitary gland similar to that controlling the adrenals.

TREATMENT OF SPIRAL FRACTURES.

A PAPER READ IN THE SECTION OF SURGERY AT THE ANNUAL MEETING, NOTTINGHAM.

BY

A. B. MITCHELL, O.B.E., B.Ch., F.R.C.S.I.,

Surgeon, Royal Victoria Hospital, Belfast.

(*With Special Plate.*)

SPIRAL fractures, as revealed by *x* rays, are much commoner than was formerly supposed. In the absence of complete reduction of the deformity and the maintenance of accurate apposition of the fragments, this fracture gives rise to very prolonged incapacity. Treatment is complicated by two difficulties: (1) the tendency of the sharp ends of the fragments to become deeply and firmly embedded in the muscles of the limb; (2) by the rotation of the distal fragment which, if it can be corrected, is very difficult to keep corrected.

A good stereoscopic *x*-ray photograph which will enable us to decide whether the spiral is right or left handed is essential. This having been obtained, reduction under full anaesthesia is attempted, rotation corrected, and suitable apparatus to maintain extension and apposition is applied.

At the end of a week a further skiagram is taken. It is surprising how often it will show either (*a*) that reduction has been incomplete, or (*b*) that rotation of the fragments has recurred. In this event, given favourable surgical conditions and efficient operative skill, there should be no hesitation in recommending operation.

The following method will be found simple, rapid, and efficient.

1. The fracture is exposed by a suitable incision.
2. The ends of the fragments are freed and brought out into the wound. (The medullary canal will be found plugged with organized blood clot, which is not disturbed, except any projecting portion which may prevent accurate locking of the fragments.)
3. A piece of silver wire is now slipped over each end of the bone.
4. The bones are replaced, and an assistant extends and rotates till the fragments are accurately locked.
5. The wires are placed one at each end of the spiral, where they are secured by twisting slowly and firmly till they have a tight grip.
6. The wires are then cut short and the ends turned down against the bone.
7. The wound is closed in the usual way.

As the wires do not penetrate the bone there is no tendency to rarefying osteitis with subsequent loosening, which is the great defect in methods involving the use of screws or wires traversing the cancellous tissue.

If the spiral is a very long one it is possible to substitute kangaroo tendon or catgut for the silver wire, using three or four strands. It is difficult, however, to tie these substances sufficiently tight to ensure absolute immobility; apposition is consequently not so perfect as with wire. There is, however, an obvious advantage, in the fact that no persistent foreign body is left behind.

Treated in this way the limb need only be fixed in splints for a short time and muscular movements commenced at the end of a week. Patients with fractures below the knee may be allowed to walk at the end of a month, and enjoy full use of the limb in two months. A longer time must, of course, be allowed for the femur. In either case the period of incapacity will be reduced to a minimum owing to the accuracy of apposition, and the small amount of callus required for repair.

[Photographs of cases illustrating the operation and its results were exhibited. See Special Plate.]

DISCUSSION.

Professor R. E. KELLY (Liverpool) said that torsional strain always produced a spiral fracture, and he demonstrated how the direction of the force influenced the form of the fracture, and how on one side the periosteum was usually preserved. A knowledge of the mechanism of production was essential in order to bring about reposition.

often been confused with hydrochloric acid. Duodenal ulcer was more common than gastric ulcer, and ulceration did not occur in areas where free hydrochloric acid was not present. If a case presented symptoms suggesting cancer with achlorhydria and lactic acid present then it was almost certainly cancer. When pain disappeared on a liquid diet there was generally no ulcer. Most patients with dyspepsia had hyperacidity, the hydrochloric acid and pepsin continuing to be secreted after digestion of the meal, when they were no longer required. Gastric diseases might be divided into the functional, including hyperacidity and hypoacidity, and the organic—namely, ulcers of the stomach and duodenum, gastritis, and cancer. In gastric ulcer the operation of gastro-enterostomy should be the last resort; its usefulness depended on the fact that it rendered the stomach contents permanently alkaline. Without an operation good results might follow an attempt to change the reaction of the stomach contents by medical means. In ulcer there was a tendency to hyperacidity; the ulcer was irritated by the gastric juice and the symptoms were increased. If the contents were kept alkaline the symptoms disappeared. With intensive alkaline treatment the results were often extremely good. Hydrochloric acid was deleterious to active ulcers while alkaline pancreatic juice was not; the stomach must therefore be kept alkaline by a powder of equal parts of the carbonates of magnesium and bismuth with sodium bicarbonate. A teaspoonful in water every two hours kept the stomach alkaline in the daytime. At bedtime a tablespoonful was given, and also in the middle of the night if the patient awoke with pain. For ten days the daily diet was three pints of milk and Benger's food; then toast and custard followed by fish, the ordinary diet being reached in four to five weeks. Smoking was very injurious, and meat was kept to a minimum. The administration of the powder was gradually reduced to thrice daily, then to twice daily and at night. This gave a chance for the irritated surface of the ulcer to heal, and the symptoms were relieved. If the symptoms did not disappear the diagnosis was generally wrong; if medical treatment failed a surgical operation was required. At his hospital clinic hundreds of these cases were treated, with only a few operations each year. As regards diet, mastication was absolutely the most important consideration, and meat was kept to a minimum. A large meal was harmful, and salads, vegetables, and condiments were bad. On the whole a surgical operation was not always a cure for gastric ulcer; many failures were met with. In haematemesis from gastric ulcer rest combined with intensive alkaline treatment gave the best results, and also prevented its recurrence.

After a considerable number of questions had been put and answered, the evening terminated with a vote of thanks to the lecturer, which was heartily acclaimed.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.

Sympathetic Ophthalmia.

THE autumn clinical meeting of the South Wales and Monmouthshire Branch was held at the Royal Gwent Hospital, Newport, on November 18th, when the President, Dr. R. PRICHARD (Cardiff), was in the chair.

Dr. W. J. ROCHE read a paper on sympathetic ophthalmia, the cause of which was in most cases a perforating wound in the ciliary region or danger zone. When the ciliary body or iris prolapsed and was incarcerated in the wound the dangers were increased, but when suppuration occurred in the injured area sympathetic ophthalmia rarely followed. The condition might follow on cataract operations or iridectomy for glaucoma. The symptoms and signs were mentioned—dimness of vision, keratitis punctata, cloudy media, and formation of synechia. The indications for and against operation, and the determination of the suitable time for operation, would depend on the state of vision in the injured and in the sound eye, and on the signs of active disease. The medicinal or expectant treatment relied on atropine, mercurials, pilocarpine, and salvarsan. The theories of causation and pathology were mentioned in detail, and also the paths of infection, and the theory of anaphylaxis. Special bacteria had an affinity for the uveal tract only, but the theory held by Brownlie and Hepburn that the disease was protozoal in origin was perhaps the most favoured.

Clinical Cases.

Dr. F. W. ROBERTSON showed: (1) A case of transposition of viscera in a man aged 25, with skiagrams in which the dextrocardia, displacement of the stomach to the right and of the liver to the left were clearly seen. (2) Psoriasis in a boy, aged 10, with a strong family history of syphilis. The distribution and character of the rash were unusual and the differential diagnosis was interesting. (3) Hydatid cyst of the meninges in a girl aged 15. There was a history of slowly developing right-sided hemiplegia followed by marked papilloedema on the left side. A diagnosis of cerebral tumour was made and an operation was performed, when a large hydatid cyst was found lying between the meninges of the parietal lobe on the left side. Papilloedema rapidly disappeared, hemiplegia passed off, but was not completely cured in the right arm. Fits occurred at nine months, twelve months, two years, and four years' intervals after the operation. During the current year fits had become more frequent and were definitely Jacksonian in type, beginning in the right foot. Skiagrams showed two spicules of bone evidently pressing on the upper part of the Rolandic area on the left side. The point in diagnosis was to decide whether the pieces of bone were the cause of the fits, or whether a patch of softening due to pressure was the focus. The question of treatment was discussed.

Dr. J. BOYD showed: (1) a case of sarcoma of the sacrum in a woman aged 21. Four months previously a swelling had been noticed, followed by weakness and loss of sensation, in the right leg. Pain was severe and she was compelled to remain in bed; sedatives were administered. An operation was undertaken, but owing to haemorrhage was only exploratory in nature. Six intensive *x*-ray exposures had been given at intervals of one week. Improvement had been rapid and she was now able to walk; a small pigmented scar over the site of tumour was seen, but no tumour could be felt. (2) A case of bronchiectasis in a girl aged 16. She had been under observation for some weeks in a sanatorium, but all evidences of tuberculosis were wanting. The sputum was not fetid, due probably to good drainage from the site of disease in the right upper lobe. Physical signs pointed to the presence of a cavity. The physical signs eight years ago were apparently the same. The skiagrams were demonstrated by Dr. T. I. CANDY, and the differential diagnosis from a radiological standpoint was explained. (3) A case of eventration of the diaphragm, in a man 50 years of age, with vague pains in the epigastrium and in the lower half of the left chest, which he attributed to an accident seven years ago. A scar on the left side of the neck was referred to an operation for tuberculous glands. As the symptoms varied from time to time, skiagrams were taken of the chest and bismuth meals examined. Marked upward displacement of the stomach was seen. The question to decide was whether this was a case of eventration—namely, a diffuse relaxation of the diaphragm—or one of genuine hernia through one of the normal openings or through a rupture, possibly as a result of the accident seven years ago. The case was regarded as one of eventration, due to injury to the left phrenic nerve.

Dr. CANDY showed two cases to demonstrate further the value of *x* rays in treatment. (1) Lupus of the nose of four years' duration, completely healed with no scarring after three exposures. (2) An exuberant warty growth on the skin of the ankle, cured by six exposures of filtered rays at monthly intervals. A small pigmented scar remained at the site of growth. Photographs were shown of the condition before treatment.

Syphilitic Aortic Aneurysm.

Dr. P. C. INGRAM read a short paper on a case of syphilitic aortic aneurysm and regurgitation in a man 69 years of age, formerly a soldier. For three and a half years shortness of breath and pain across the front of the chest were the chief symptoms. An enlarged heart

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ULSTER BRANCH.

THE opening meeting of the Ulster Branch for the session was held in the Medical Institute, Belfast, on November 18th. The retiring President, Dr. D. P. GAUSSEN of Dunmurry, thanked the members of the Branch for their cordial and kind support during his year of office, and introduced his successor, Dr. JOHN S. MORROW, who took the chair, and read his address entitled "Some points in medical examinations for life assurance."

Dr. Morrow said that the British Medical Association was fast nearing its centenary; it was founded in 1832, and now numbered 32,000 members. The Ulster Branch had striven to keep before it the objects of the Association—to increase and diffuse medical knowledge, to promote research, to watch over and defend the interests of the profession, and to encourage and foster friendship and mutual esteem among medical men that they might the better discharge their onerous and often trying duties to their patients and to the public. These ends were all the more indispensable now that the profession was exposed to attacks by organizations which promulgated in journals opinions which they, as trained and educated medical men, could not but look upon as dangerous to the community.

Medical Examination for Life Assurance.

The examination for life assurance was generally a simple and routine matter to the experienced physician; but many young men, trained in hospital to look for and to diagnose disease, found a difficulty in estimating the expectation of life of an apparently healthy man. To do so with confidence and reliability required a sound professional knowledge, good common sense, as much experience as possible, carefulness, and a certain discerning sympathy with the frailties of life. The medical examiner and referee was only one link in the chain of evidence; the reports of the agents and local managers, of the friends, and the final judgement of the chief medical officer at headquarters, were all evidential. A young medical practitioner should weigh the answers of the overconscientious and garrulous applicant; of the unwilling proposer out of whom he must dig all information; of the important business man who says there is no necessity for him to strip; of the hustling, well nourished, florid type who says he has never been refused; and of the elderly man who is applying for life assurance for the first time. As regards the actual examination, this should always be made without anyone present, and in a good light; male applicants should be stripped to the waist. Much stress was rightly laid upon the careful examination of the apices of the lungs, but the bases must never be omitted. Life assurance companies always laid great stress on heredity. Early senile decay and longevity were both found in families. One death from cancer in a relation might be ignored, but two demanded loading. In tuberculosis both the tendency to consumption, which was hereditary, and the accident of living with an infected patient must be considered; the older the applicant in the first instance and the longer the interval of time since exposure to infection in the second, the less was the danger. The causes of death known as "childbirth," "congestion of lungs," and "bronchitis" must always be closely and searchingly inquired into, as pulmonary tuberculosis was not infrequently cloaked under such a disguise. Body weight must also be fully discussed, and where no evident cause of excess either way could be discovered, the 15 or 20 per cent. departure from average weight-height ratio must decide the acceptance or refusal. Syphilis was another factor, and opinion had become more and more stringent. It must never be forgotten that curing symptoms did not mean the elimination of the disease. Tabes and general paralysis might still be coming in the future. Companies relied chiefly on the history, the thoroughness of treatment, the absence of recurrences, and the presence of healthy children; no one should be accepted in any case in the first three years after an initial sore, and an increased premium was demanded for the next ten years. No one acquiring syphilis after 40 should be accepted; a Wassermann test was often of great help. Albuminuria had been found present in 16 per cent. of schoolboys, and severe physical exertion would excite it in most adolescents. Its disappearance with a four-day course of calcium and a clear biochemical renal test would render acceptance possible. In glycosuria the habit in some people of eating unduly large quantities of sweets or sugar, and also the low sugar threshold of some kidneys, forming renal glycosuria, must be investigated before rejection, a blood sugar test being required. In both functional albuminuria and in temporary glycosuria no trace of the classical signs of either condition should be present. The acceptance of certain heart conditions had been said to depend on the skill and bias of the examiner; a murmur always indicated something, but it had been proved clearly, and was generally accepted, that many soft systolic murmurs were of no vital significance. An aortic systolic murmur should always be fully investigated with regard to the possibility of stenosis of the aortic orifice. The heart should always be examined both in the supine and erect positions; a mitral stenosis might manifest itself only on exertion or in the recumbent posture. This lesion and aortic incompetence were for practical purposes uninsurable, although occasionally very mild forms, where no symptom and no cardiac enlargement were present, might be taken with safeguards. In cases of cardiac irregularity an electro-cardiograph record and the results of the exercise test should be obtained. Sinus irregularity and that due to respiration and some forms of extra-systoles did not debar acceptance, but the other forms were prohibitive. In low blood pressure careful search for tubercle should be made, and with high pressure kidney and cardio-vascular trouble in an incipient stage might be threatened.

Dr. LESLIE proposed and Professor MACILWAINE seconded a hearty vote of thanks to the President for his clear, practical, and instructive address, which was the fruit of long experience and thoughtful observation.

Dr. DARLING (Lurgan) showed a specimen of a large uterine fibroid, weighing 8 lb., that he had just removed from a pregnant woman, lately married, aged 27, without inducing abortion or performing Caesarean section. Some years ago he had had a successful case of the same nature, and although the woman aborted some weeks afterwards, yet, later, she had a successful pregnancy and safe delivery of a living son.

CITY DIVISION.

Treatment of Gastric Diseases.

A MEETING of the City Division was held at the Metropolitan Hospital on November 2nd, when thirty-six members were present, and Professor HUGH MACLEAN of St. Thomas's Hospital gave an address on modern views on the treatment of gastric diseases.

Professor Maclean first discussed the normal conditions of the stomach. During a meal the hydrochloric acid and pepsin increased, and with them the sodium chloride. With digestion in progress there was a regurgitation of alkaline pancreatic fluid from the small intestine, which neutralized the acid in the stomach. Lack of gastric juice did not set up gastric symptoms, the real digestive juice being pancreatic. The stomach was not required if the food was thoroughly masticated; it acted as a feeder and prepared food for entrance to the intestine. Ulceration was associated with the action of hydrochloric acid on the stomach, since it was confined to the "hydrochloric acid area." All evidence went to show that there was no risk of cancer following ulcer of the stomach or duodenum. Only 3 per cent. of cases of cancer of the stomach gave a history of symptoms which might suggest previous ulceration. While x rays were often not very helpful in the diagnosis of ulcer of the stomach, they were nevertheless sometimes very useful in cases of suspected cancer, where they often gave definite results. With test meals 88 per cent. of hospital cancer patients showed no hydrochloric acid. In the past lactic acid had

The effect of injecting 1/100 grain of hyoscine was to depress the blood sugar values, but there might be a secondary rise of that curve due to some hyperglycaemia two hours after the glucose meal and the drug injection. A similar result was produced on the curve by atropine. These drugs also caused inhibition of the external secretion of the pancreas, and a general arrest of the secretions of the alimentary tract. The blood sugar values obtained in this disease were consistent with the theory that it was a chronic toxaemia. The results of the injection of hyoscine simultaneously with the ingestion of glucose permitted of a classification of the cases into two groups: (1) those exhibiting Parkinsonism with a depression of blood sugar levels, (2) those not exhibiting Parkinsonism and in which the blood sugar curve did not show improvement after the injection. Hyoscine could be given either subcutaneously or by the mouth, but the best effects followed a combination of the two methods, 1/100 grain injected in the morning, 1/50 grain during the day by the mouth. Some of the unpleasant effects were combated by giving 1/10 grain of pilocarpine. Some patients had been having hyoscine two years, and no deleterious effects were traceable. The action of the drug was only temporary, and when it was discontinued there was a relapse into the former state. Stress was laid on the fact that these patients were still suffering from an active disease, not the mere after-effects of an acute process. The treatment, the authors said, must still be regarded as in the experimental stage. Two drugs were found very helpful for this disease—tryparsamide and argotropin. These were given to all cases, of both types. Tryparsamide seemed to gain access to the central nervous system in a way that no other arsenical preparation appeared to do, and no case had shown progress of the disease since it was given. The course was eight weekly injections of 2 to 3 grams.

Dr. HARRIS then demonstrated a large number of patients, illustrative of the various stages of the disease, in groups.

TUBERCULOSIS IN MAN AND IN CAPTIVE WILD ANIMALS.

A MEETING of the Section of Comparative Medicine of the Royal Society of Medicine was held on November 24th, when a discussion on tuberculosis in captive wild animals as compared and contrasted with the disease in man was opened by Dr. H. H. SCOTT, pathologist to the Zoological Society of London.

Dr. Scott, in his opening remarks, dealt briefly with the question of the existence of tuberculosis amongst wild animals under natural conditions, stating that there was no evidence in favour of the occurrence of this. Taking into consideration the case of the more isolated native communities, it appeared that, on *a priori* grounds, it was most unlikely that tuberculosis should occur in free animals, though this was a difficult thing to prove.

The reasons for the readiness with which tuberculosis was contracted in captivity were in the main three. The first was the survival of the unfit, since the healthiest animals were killed or escaped, and it was mostly the sick, injured, or very young which fell into captivity. In the second place tuberculosis might result from contact, after capture, with man or other animals, while the wild animals were in a condition of susceptibility owing to the absence of previous immunization from such repeated doses of bacilli as were commonly found in civilized communities. Thirdly, the disease might be due to the confinement, lack of exercise, deficient sunlight, ennui, and in some cases inability to obtain their natural food. The various facts adduced were based on the findings and records of the necropsies performed on animals dying during the last two years at the Zoological Society's Gardens. It had been noticed that some of the animals dying with most extensive tuberculous mischief and a widespread distribution of lesions might exhibit practically no signs of ill health until a very few hours before death. This had been observed both in birds and mammals, and various illustrative examples were given. A cercopitheque at autopsy showed bronchopneumonic phthisis with pulmonary excavation and involvement of the pleurae, the omentum, and mesentery. The liver and spleen were thickly studded with caseating deposits, the head of the pancreas was occupied by a large tuberculous mass, both kidneys showed miliary tubercles, and the bronchial, infraclavicular, and mesenteric glands were enlarged, caseated, and softening. With so extensive a tuberculosis the animal was nevertheless not emaciated and had appeared to be in its normal state of health on the day prior to its death. In mammals and birds, but less so in reptiles, generalization of the disease was as a rule greater than in man, and the course seemed in most cases to develop much more rapidly. The difficulties of determining the primary portal of entry of the bacillus, by no means always an easy matter in man, were greater in animals because of the rapid development and generalization, rendering it sometimes impossible to say which was the oldest focus. Certain differences between the symptoms and also the pathological lesions in animals and in man were then detailed, notably the absence of haemoptysis due to phthisis, which Dr. Scott had not seen in any of the animals, even in an advanced stage of pulmonary tuberculosis, and the rarity of tuberculous affection of the nervous system, or of the bones and joints. The only bones attacked with even relative frequency were the ribs, which, in monkeys, might be involved by direct extension from the lungs. On the other hand, in spite of the prolongation of the air passages into the long bones in birds, the bacilli, though repeatedly looked for, had not been found in the shafts even when the lungs and air sacs had been converted into masses of caseous tubercle. The rarity of pus formation in avian tuberculosis was mentioned and the possible relation of the Pierre Marie syndrome of hypertrophic pulmonary osteoarthropathy to tuberculous infection of the bones. The differences presented by tuberculosis in birds as compared with the condition in mammals were discussed in considerable detail, with particular reference to the nodular form and that known as "gelatinous tuberculosis," in which a hyaline necrosis seemed to occur simultaneously over an area of some size, as distinct from the slower progressive necrosis of mammalian disease. Another marked characteristic was the peculiar infiltrative form of avian intestinal tuberculosis. Brief descriptions were given of the microscopical differences between miliary tubercles in man, cattle, dogs, monkeys, birds, and reptiles. Specimens collected by Dr. Scott at the Zoological Society's prosectorium and now in the museum of comparative pathology at the London School of Hygiene and Tropical Medicine, were used to demonstrate some of the conditions described.

TREATMENT OF CONGENITAL TALIPES.

A MEETING of the Bristol Medico-Chirurgical Society was held on November 10th, the President, Dr. A. L. FLEMMING, taking the chair. After Mr. E. R. CHAMBERS had shown a case of recurrent carcinoma of the uveal tract in a woman of 55, and Dr. A. D. FRASER had exhibited specimens of endometrioma, Mr. A. W. ADAMS read a paper on the treatment of congenital club-foot.

Mr. Adams defined the differences between this condition and the deformities consequent on paralysis, spastic or flaccid. The etiology of congenital talipes equino-varus, the commonest variety, was unknown, but he inclined to the old theory that deficiency of the liquor amnii allowed pressure on the foetus. The theory of arrest of development could scarcely account for some of the varieties. The incidence was greatest among males; it was said to show a familial tendency, but this was found in two cases only of his series, who were brothers. There was a tendency to associated deformities, as illustrated by one case shown, with webbed fingers and ankylosed elbows, wrists, and other joints. The condition often affected both feet, and in his series this was found in half the patients. Two factors must be recognized; rotation inwards on an antero-posterior axis brought the os calcis up under the internal malleolus, while rotation inwards on a vertical axis at the mid-tarsal joint brought the fore part of the foot pointing inwards and the sole backwards. The tendons and ligaments on the inner side of the ankle-joint were shortened.

was present with a to-and-fro bruit, but no abnormal cardiac dullness or pressure signs. The Wassermann reaction was positive. A skiagram showed an aneurysm of the aorta. Potassium iodide was given for three weeks and then nine injections of bismuth at weekly intervals. There was considerable improvement in the condition four months later; there was no chest pain, and the orthopnoea was less, but the urine showed a trace of albumin. A fortnight afterwards kharsulphan 0.3 gram and silversal 0.1 gram were started at weekly intervals alternately, but after the sixth he felt worse and colloidal iodine was given instead. Another course of nine injections of bismuth was given and further improvement noted. Three weeks later a slight attack of jaundice occurred. Thiostab was administered in five doses at weekly intervals and the jaundice had then cleared. The present condition of the patient was satisfactory, the pulse being 80 lying and 88 standing; the urine was normal and only slight dyspnoea and pain were experienced on exertion. The improvement under antisyphilitic treatment was encouraging, but it was undertaken too late in the disease to be of very great benefit. The attack of jaundice illustrated the care required in the administration of arsenical preparations, and it would have been advisable in this case to have given kharsulphan only. The bismuth had been of benefit and had been well tolerated.

Death following Wasp Sting.

Dr. W. F. DONOGHY described two cases of wasp sting, one of which, in a man aged 44 and in good health, ended fatally. Sixteen years before he had been stung by a wasp and alarming symptoms developed. Recovery followed, but he had lived in dread of wasps since. In August last year he was again stung on the left forearm over the basilic vein. He quickly lost consciousness, cyanosis followed, there were jerky movements of hands, the tongue was swollen, and foaming at the mouth was seen. In a few minutes he was dead, before medical aid arrived. The interesting point in this case was the possibility of anaphylaxis or of suggestion playing a part; both might be responsible.

The meeting, which was well attended, terminated with a cinematograph demonstration by Dr. T. I. CANDY, who showed two films, the first of the capillary circulation as seen under the microscope, and the second of the social meeting of the Branch held in May at the Roman Amphitheatre at Caerleon.

Reports of Societies.

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE usual quarterly meeting of the Royal Medico-Psychological Association took place at the Horton Mental Hospital, and later at the West Park Mental Hospital, Epsom, on November 16th, under the presidency of Lieut.-Colonel J. R. LORD, C.B.E., M.B. A special meeting of the association was held on the previous afternoon in the Great Hall of the British Medical Association House to hear an address by Dr. ALFRED ADLER of Vienna on "The cause and prevention of neurosis," to which had been invited all psychiatrists and neurologists and senior medical students. There was a large attendance, and Dr. Adler was most cordially received and listened to with the greatest interest. We hope later to publish an abstract of his address.

Before introducing Dr. Adler, the PRESIDENT alluded, with deep regret, to the death of Professor Emil Kraepelin of Munich, an honorary member of the association since 1909 and a psychiatrist of world-wide reputation. The audience rose in silence as a tribute of respect and regret. At the meeting held at Horton Mental Hospital Professor G. M. ROBERTSON also referred to the death of Professor Kraepelin, and the PRESIDENT alluded with feeling to the passing of Dr. R. H. Cole, who had laboured so long and successfully for the association.

A Research and Clinical Psychiatry Committee.

The PRESIDENT said that there had been a most encouraging response to his circular letter on this subject, and many helpful suggestions had been received. He expressed the view that every member should either have definite work to do for the association or some direct interest in it. Resolutions were unanimously passed appointing a preliminary Research and Clinical Psychiatry Committee to prepare the way for the standing committee on these subjects ordered by new by-laws under the charter; also regarding the establishment of divisional clinical meetings as outlined in the presidential address. The local authorities are to be approached to afford facilities for the holding of the latter (to which local practitioners will be invited) and to encourage all assistant medical officers to attend.

Chronic Epidemic Encephalitis.

At West Park Mental Hospital a joint paper by Dr. P. K. MCCOWAN and Dr. J. S. HARRIS was read by the former on chronic epidemic encephalitis. It consisted of a description of what was being done for the cases of the condition in this institution, and of some experimental work with hyoscine, with special reference to its carbohydrate metabolism. The authors said that investigations in encephalitis lethargica were leading to a better understanding of the neuroses and psychoses, as it had afforded insight into the psychological and physiological mysteries of many mental mechanisms. The symptoms shown by some of the cases appeared first during an attack of acute epidemic encephalitis, and persisted after the disappearance of the other symptoms. It was found to be impossible to give a prognosis of the ultimate outcome of an acute attack, however mild—indeed, a history of an acute attack was not necessary to establish a diagnosis. In children especially later symptoms were common after an attack. Hyoscine could be regarded as a specific in the treatment of encephalitic Parkinsonism; therefore the authors first investigated the carbohydrate metabolism as represented by the blood sugar curve, experiments being conducted later on muscular tonus, and inquiry into the altered affectivity as shown by the psycho-galvanic reflex. All those phenomena were abnormal in these patients, but hyoscine caused them to approximate to the normal. In the normal person the subcutaneous injection of 1/100 grain of hyoscine hydrobromide was followed, in ten to fifteen minutes, by dryness of the mouth and throat, a sensation of giddiness and some mental confusion, slurring of speech, and inability to walk straight. There was also marked impairment of accommodation, so that none but the largest print could be read. Later there followed a feeling of laziness or fatigue, and if left to himself the person would fall asleep and remain asleep for several hours. So that, in the case of the normal person, the effects of hyoscine were depressant, the contrary effect to that seen in subjects of this disease. In practically every case of the disease under consideration a proper dose of hyoscine caused improvement; the general muscular rigidity was reduced, while the tremors of face and extremities and the excessive salivation and lacrymation disappeared. The patient's alertness was also increased, articulation was improved, and there crept into the rigid countenance some expressiveness. The action of hyoscine, the authors submitted, supported the thesis that the functions of the mind were dependent on the harmonious working of all parts of the body. The authors used an apparatus they devised for taking a mechanical record of the knee-jerks, and these records showed an approximation to the normal knee-jerk under the influence of hyoscine. A number of cases were related.

Discussing the disease in its general aspects, the authors said that the functional aura was here found to an extent not approached by any other group of patients in a mental hospital. They thought that here could be discerned a clue to the discovery of an organic basis for the so-called functional nervous disorders and psychoneuroses. In encephalitis lethargica there might be subtle biochemical or biophysical abnormalities. The site involved was that of the basal ganglia, a centre of prime importance in the instinctive and emotional life of man. The laboratory investigations were carried out at the Maudsley Hospital.

introduction of anaesthetics and their application to labour by the genius of J. Y. Simpson; the application of Lister's antiseptic principle to labour; the invention of rubber bags by Keiller, and their introduction into the uterus for induction of labour; the improvements of the forceps by the Simpsons, and later by Milne Murray, to mention only a few of the earlier papers. In the last thirty-five years the work of the society had shown no deterioration, and all the later discoveries had been fully discussed, and several had found origin within its precincts. Very important physiological and pathological research had been carried out by numerous Fellows of the society, perhaps the most important being the work of Matthews Duncan and of Hart and Barbour on the anatomy and physiology of labour, and the series of contributions by Ballantyne on ante-natal pathology. Gynaecology was not a recognized science when the society was founded, and it was not until the society had been in existence for twenty-five years that gynaecology emerged as a specialized branch of medical science and practice, the outcome of the work of both the surgeon and the obstetrician jointly. In their modern conception obstetrics and gynaecology were inseparable as "the greater gynaecology." It had been aptly said that good midwifery was preventive gynaecology, and until a considerably higher standard of midwifery was reached it would remain true that half of gynaecology was reparative midwifery. In this organic union midwifery and gynaecology were now intimately linked up with both medicine and surgery. To medicine they were linked by the recent developments of biochemical study of the maternal metabolism, of the toxaemias of pregnancy, and of the nutrition of the foetus; while the wide field of endocrinology was common to both medicine and the greater gynaecology. With surgery the greater gynaecology was closely linked by the numerous operations required to be performed, not only in gynaecology, but also in midwifery. The whole position had been summed up succinctly by Sir George Newman in his remark, "The obstetrician and gynaecologist is the great example of the unity of medicine and surgery in actual practice. Here is the full integration." Professor Johnstone pointed to the significance of such a remark being applied to the practitioner of what in 1840 was regarded as an inferior sort of art which had little connexion with either of the great departments of medicine or surgery. The Cinderella of medicine, as midwifery used to be called, had found her prince in gynaecology, and taken her rightful place in the family at last.

ROUTINE EYE EXAMINATION.

AT a meeting of the London Association of the Medical Women's Federation, on November 9th, Miss ELIZABETH BOLTON, the President, in the chair, Miss IDA C. MANN read a paper on routine examination of the eyes as an aid to diagnosis.

Miss Mann said that by routine examination she implied such investigation as could be easily made by the general practitioner and would indicate any abnormality. The tests suggested were: Examination of the position and condition of the eyes and lids with the patient looking straight forward; examination of the movements of the eyes and upper lids when the patient followed a moving finger, the head being kept still; examination of the pupil reactions; rough test of the fields of vision with the hand; examination of the media of the eye and the fundus with an electrical ophthalmoscope, which would reveal the presence of opacities of the media and disease of the fundus without a mydriatic in most cases, though fuller examination might be necessary in order to establish the diagnosis. The electrical ophthalmoscope, being easier to use than the non-luminous instrument, should be in the possession of every general practitioner. The patient's visual acuity with each eye should be tested separately without glasses for distance and near vision; Snellen's and Jaeger's test types were the best for this purpose. Such a routine examination would in a large number of cases be found to afford most valuable assistance to diagnosis. In some instances it might even establish the diagnosis, as when it revealed, in a patient complaining of shooting pains in the legs, the presence of an Argyll Robertson pupil; in other cases it would often indicate a fruitful line of investigation and treatment. Some patients complained of ocular symptoms only, others with symptoms elsewhere made no mention of their eyes. In some of the latter cases a direct question would elicit an admission of ocular symptoms, but in others, and these usually the more serious, the patient was quite unaware of the presence of any eye disease. In both groups an ophthalmic examination was equally imperative. In a certain number of cases, as for example, in errors of refraction, the ocular condition sufficiently accounted for the symptoms. Headache, not necessarily frontal, and often worse in the morning than at night, was a frequent accompaniment of error of refraction; it might be associated with depression, lack of concentration, fatigue, anxiety, and even, in some cases, nausea and dyspepsia. A suitable pair of glasses would benefit a hypermetropic clerical worker more than a month's holiday, and might often avert a definite breakdown; this was especially true in women between 45 and 50, at which age, unless she was myopic, the average woman would begin to suffer from eye-strain after close work. This onset of presbyopia was physiological, and, if corrected by glasses, not painful. If neglected, it could give rise to very severe headache, which, coming at a time of life when most women had been taught to expect a certain amount of discomfort, was often put down by them and their doctor to the climacteric, though inquiry would reveal that their periods were regular. A suitable pair of glasses for work would entirely remove the symptoms. It was much too common a practice to refer every pain in a woman of 46 to menstrual disorder, though evidence was accumulating to show that the menopause occurred on the average nearer 50 than 46. Men were, in her experience, much less tolerant of this presbyopic headache than women, and usually sought relief for it earlier. Much more important, however, than the detection of errors of refraction was the early diagnosis of glaucoma. Though not actually a matter for the general practitioner, since it demanded experience and a certain amount of elaborate apparatus, the disease could at least be suspected. It was accompanied by attacks of headache, transient blurring of vision, and, occasionally, nausea; the central visual acuity might remain good almost up to the onset of blindness. The acute form of glaucoma was most often overlooked by practitioners who did not perform routine examination of the eyes. Miss Mann mentioned the danger of injecting atropine before operation in a subject of chronic glaucoma, and quoted six cases treated for gastric influenza, intestinal colic, food poisoning and other troubles, before advice was sought for the ocular condition. In two cases the congestion of the eye was noticed by the doctor, who proposed to treat it when the patient was better, not realizing that the vomiting and collapse for which advice was sought could have been relieved immediately by a posterior sclerotomy, and the sight of the eye (which was in each case lost) probably saved. In other cases, the headache or other symptom for which advice was sought was a manifestation of a general disease having ocular signs; in these cases examination of the fundus was of much assistance in diagnosis. All cases of headache and vomiting required a fundus examination; a papilloedema would be found in some, and the diagnosis of cerebral tumour could be made before the onset of optic atrophy. In other cases the presence of disease of the retinal vessels, exudates, haemorrhages, patches of choroiditis, and other abnormalities would supply a diagnosis, or at any rate indicate a line of investigation, at an early stage. It was surprising how often the initial diagnosis of diabetes, albuminuria, arterio-sclerosis, and syphilis was made in the eye department of a general hospital. In disease of the central nervous system an ocular examination was pre-eminently of help, but a very large number of systemic and general diseases had ocular signs, and diseases so far removed from the eyes as apical phthisis and carcinoma of the pancreas might be suspected from an ophthalmic examination alone.

Miss Mann, in reply, said that an injection of eserine could be given before the atropine where glaucoma was suspected. She suggested that the circumcorneal injection mentioned by Dr. Casson might be related to a prolonged

Treatment, to be successful, must begin early, at one month if possible, when the tissues were pliable and the bones relatively plastic; it must be regular, prolonged, and continuous. It was waste of time to attempt treatment on manipulative lines unless the parents realized that for success they must co-operate with the surgeon. For several weeks treatment aimed at reposition, for some months at retention, and for some years at education. The first step was to secure the reposition of the astragalus by manipulation around the antero-posterior axis. The astragalus was forced in under the tibia, and the os calcis was drawn downwards and outwards under the astragalus. In addition to forced movements by the surgeon, the foot was moved as far as possible in the correct position by the nurse several times a day, being held there for a few minutes. When the posterior part of the foot was rotated the anterior part was turned outwards on a vertical axis. Slight over-correction was the aim. In all cases some fibres of the deltoid ligament had to be divided, in many part of the inferior calcaneo-scaphoid ligament, and in few was tenotomy needed. A diagram showed how a roll of stockinette might be used to avoid bruising. As soon as the foot could be brought well out it was put up in plaster for several weeks, with changes and manipulations once a fortnight. The tendency for the plaster to fall off a fat leg and foot was met by carrying it up over the knee or by incorporating strapping. The next step was tenotomy of the tendo Achillis; without this attempts to correct equinus would stretch the plantar ligaments. The over-correction should not be too great. A wooden sole-plate was used with strapping to retain the foot in the over-corrected position. Movements and massage were continued at regular intervals; this was the difficult time, for parents saw the foot in a good position, and wished to discontinue attendances, which had become wearisome. At 18 months a malleable splint down the back of the leg and along the sole was employed, fitted with a toe-plate to resist varus. The child was encouraged to walk, but wore the splint day and night; a small overshoe was used with the splint. The régime of massage and movements was continued long after the splint could be discarded. By the age of 3 the child could learn simple exercises, and so co-operate in treatment. In some cases, however, iron supports were needed for several years. In other patients who came late for treatment cuneiform osteotomy was required. The only absolute bar to success was failure to attend regularly for the necessary period of several years. Treatment might be interrupted by a variety of causes, such as illness of parents or patients, or by poverty. The stupidity or carelessness of parents might vitiate the results of months of work. Long treatment in plaster seemed to interfere somewhat with the nutrition of the limb. Neither this nor some degree of flat-foot (which was not rare) appeared to cause the patients any trouble. There was a tendency to hallux varus when the child began to walk without splints, and in some cases an inward twisting of the tibia; osteotomy of the tibia might be needed, but had not been employed for any of the cases shown. In conclusion, Mr. Adams classified in tabular form the results obtained with thirty-three feet, to indicate how regularly results less than "good" were associated with irregular attendance. Eight cases were shown to illustrate the later stages of treatment, and many photographs to demonstrate the application of various forms of retention apparatus.

Professor HEY GROVES said that the greatest difficulty in treatment was to secure adequate co-operation by parents. He thought that insufficient emphasis had been given to the correction of the malposition of the astragalus. He had found that reposition in a small fat foot was not easy, but thought failures were often due to this part of the deformity not having been corrected. Where the foot faced inwards he advised osteotomy of the tibia. Tarsectomy gave excellent immediate results as regards reposition, but the after-treatment needed to be just as careful and prolonged, and the final result was not so good as with manipulative methods. He particularly admired the sole-piece used by Mr. Adams.

Mr. H. E CHITTY agreed that the displacement of the os calcis was the most difficult part of the deformity to reduce. He had found plaster splints very difficult to retain in position, and used a small internal malleable splint. In late cases he took out a wedge on the outer side to correct the heel; the remaining correction was easy.

Mr. E. WATSON-WILLIAMS had noticed that in the first case shown, and in several of the photographs, the second or third toe was pushed up out of line so as to lie on the dorsum of a neighbour. He asked about the correction of this, and suggested a connexion with the tendency to hallux adductus.

Mr. W. A. JACKMAN had obtained very good results in seven cases out of eight with Mr. Adams's splints, not using plaster; all his cases were bilateral.

The PRESIDENT believed the deformity was related to a defective heredity, which was relatively common in remote and isolated districts, and showed itself in mental as well as physical abnormalities.

Mr. ADAMS, in reply, said he recognized that the posterior deformity was the most difficult to treat. This correction could be made at the same time as the abduction, but it was easy to overdo it. In favour of plaster over splints at the early stage, he remarked that splints needed daily attendance. He admitted that the following up of cases would be made easier by the appointment of an officer for this service. Great efforts were often needed to keep some parents attending regularly.

THE EVOLUTION OF GYNAECOLOGY.

AT the first meeting of the eighty-fifth session of the Edinburgh Obstetrical Society, on November 10th, Professor R. W. JOHNSTONE delivered his presidential address on "The greater gynaecology: its relations to medicine and surgery."

Professor Johnstone recalled that the foundation of the society in 1840 was in the main due to younger members of the profession, who were practising midwifery and who were admittedly "dissatisfied with the position that branch of medicine held in the eyes of the profession and public, and who were anxious and determined to make an effort to raise it to a position more worthy of the important interests it guarded and the onerous duties it performed." Records of those days clearly showed that practitioners in obstetrics were looked upon by their brethren as being engaged in the practice of an inferior sort of art, which had little connexion with either medicine or surgery.

In seeking for an explanation of this alleged inferiority Professor Johnstone briefly sketched the history of midwifery, and indicated how the development of obstetrics was retarded by the practice of the art being in the hands of ignorant midwives. Little advancement was made during the fourteen centuries following the work of Soranus of Ephesus until William Harvey wrote his chapter on labour, the first original English work on midwifery. The Chamberlen family and their important discovery did much to drive out the uneducated midwife, who had been the sole attendant on the parturient woman for centuries, as no untrained woman could use such an instrument as the forceps on the living mother and the living child. Further advancement in the science and art of obstetrics was made during the next century, principally by Smellie, William Hunter, and Charles White, and it was due in the main to the teaching and influence of these great men that the practice of midwifery was finally transferred from the ignorant midwife to the trained male practitioner. The rapid development of the science of obstetrics after this transference had been accomplished showed what a retarding influence had been exercised during the long reign of the uneducated midwife. Surgery had suffered an eclipse similar to that of midwifery during the Dark and Middle Ages, and its elevation to equal partnership with medicine was a comparatively recent development, for which the genius of Paré, John Hunter, J. Y. Simpson, and Lister was required. Referring to the origin of the Edinburgh society, Professor Johnstone indicated how such a society could exercise beneficial influence, and how the Edinburgh society had been doing so. The development of obstetrical science and art during the last eighty-five years had been reflected at every step in the work of the society. Thus, in its annals were to be found the original papers on the

Brodie, and, as in his judgement there remained a slight doubt, Smethurst was pardoned and released. He actually brought an action in the courts to obtain the money of the wife he had murdered, and won his case. He was afterwards sentenced to a year's imprisonment for bigamy. Another instance was that of Dr. Cross of co. Cork, who fell in love with the beautiful and accomplished young governess of his wife. She yielded to his solicitation, and as he was most anxious for a legal union, he murdered his wife by means of arsenic, and at once took the girl to London and secretly married her. Suspicion was aroused, the body was exhumed, and arsenic found. This led to the speedy trial, conviction, and execution of Cross. Some examples of medical men who had been charged with high treason were then given. Dr. Cameron, in the rebellion of 1745, was medical officer in charge of troops, and after the battle of Culloden escaped to France. Most of those who had taken part in the rising were pardoned, but an Act of Attainder was passed excluding certain persons, among them Cameron, from this indemnity. Some eight years later Cameron returned to his native land; he was arrested and hanged as a traitor. Dr. Watson, who engaged in the political upheavals after the end of the Napoleonic wars, and was connected with the notorious Thistlewood (later executed for his share in the Cato Street conspiracy), was one of those who led the mob which set out to burn the Tower of London, the Bank of England, and other Government buildings; although this object was not attained, great damage was caused by the rioters. Watson, mainly owing to the very brilliant speech of his counsel, Mr. Wetherell, was acquitted. After the battle of Sedgemoor the Government, not satisfied with the cruel and vindictive treatment of the rebels by Judge Jeffreys, arrested Dr. Bateman and charged him with high treason. Bateman was a strong supporter of the Exclusion Bill, and had rendered assistance to Titus Oates when that rogue was whipped in the streets of London; he was convicted of complicity in the Whig plot and sentenced to be hanged and quartered. Dr. Parry pointed out that this short list by no means exhausted the doctors who had been entangled in political affairs, and who had been charged with high treason or other serious offences. Others were Dr. Wakeman, physician to Queen Katherine, Dr. Bastwick, Dr. Spruell, Dr. Hensey, Dr. Sheridan, and Dr. Joseph Collier. Two cases of murder by violence by medical men were recalled: that of Dr. Levi Weil, who turned burglar and murdered a man in one of the houses he robbed, for which he was hanged; and Dr. Smith of Aberdeenshire, who killed a labourer after heavily insuring his life, but was acquitted.

DIAGNOSIS AND TREATMENT OF GONORRHOEA.

COLONEL L. W. HARRISON opened the session of the Medical Society for the Study of Venereal Disease on November 26th with a survey of modern methods in the diagnosis and treatment of gonorrhoea.

He emphasized the need for laboratory procedures to determine the nature of an infection. Those who neglected microscopical examinations of the secretion often went on treating for weeks a non-gonococcal infection with potassium permanganate or one of the endless varieties of silver preparations, which, in his judgement, were useless against such organisms as *B. coli*, *streptococci*, and *staphylococci*. There were differences of opinion as to the value of cultures in the diagnosis of gonorrhoea, but personally he thought them indispensable in female cases, and often valuable in male urethritis. While he did not think the complement fixation test as satisfactory as the Wassermann in syphilis, it was carried out as a matter of routine in all the female and many of the male cases attending his clinic. On occasion a positive reaction by this method was the only indication that a gonococcal infection had not been eradicated. As for topical diagnosis, Colonel Harrison said that he was not greatly concerned, in the acute stage of gonorrhoea, to determine whether or not a patient had posterior as well as anterior urethritis. It did not affect the general lines of his treatment, because he believed in washing the whole urethra with mild lotion from the first. It surprised him to see those who limited local treatment to the anterior urethra until they considered the posterior urethra affected rely for the diagnosis of commencing posterior urethritis on the two-glass test, because a little thought must convince them that, when the posterior urethra began to secrete pus, all of it must be washed into the first glass. He also urged the value of the urethroscope in diagnosis; to omit its use seemed to him reactionary. With regard to treatment, he was one of those who, while not denying the value of local treatment, did not believe that there was any bactericidal remedy which could reach down to and destroy the gonococci in the depths of the tissues. He sought to cure gonorrhoea by encouraging those processes whereby the tissues rid themselves of the infection. The modern treatment of gonorrhoea consisted in the application of two great surgical principles—namely, the raising of the patient's resistance and the securing and maintaining of drainage. Silver nitrate was formerly the great stand-by in both male and female gonorrhoea, and it was still used by many workers in female gonorrhoea in strengths which, in his view, only cauterized the surface, converting it into an excellent medium for the growth of secondary organisms, and left considerable scarring, whilst failing to kill the deeper-lying gonococci. The ineffectiveness of silver nitrate as a complete cure was sufficiently shown by the use of the innumerable other silver preparations which, during the last thirty years, had been advocated in its stead. He was in agreement with many workers who were trying to discover indirect methods of assisting the tissues to eliminate the gonococci. Some workers believed that vaccines had a specific value, and others that any good effect was by virtue of their protein-shock action. Colonel Harrison himself had always held that there was somewhere in certain cultured strains of gonococci the means of raising the patient's resistance to a degree sufficient to bring about the elimination of the infecting organisms. On the value of protein-shock therapy in gonococcal infections, he could say only that it was certainly useful in complications, but that here, as in vaccines, there was much still to be learned as to preparations and their dosage which gave the best results. At St. Thomas's they had used chiefly electrargol and milk. The results with milk in combination with vaccine had not been so good as those claimed by Tansard, possibly because the milk was not so full of bacteria as that used by the French worker. In diathermy at St. Thomas's the results had been sufficiently encouraging to justify perseverance. He believed that it acted, not by destroying gonococci by heat, but probably by an auto-vaccine effect.

Major E. C. LAMBKIN described in detail certain investigations, not yet completed, which are taking place at the Royal Herbert Hospital at Woolwich on the scientific preparation of a vaccine against gonorrhoea. The results so far obtained indicate that gonococci can be divided into good and bad immunizers, and that from the former can be split off a fraction which is antigenic but not toxic.

JAMES MACKENZIE INSTITUTE.

ON November 3rd Dr. BARCLAY NESS communicated a paper on "Difficulties in the clinical diagnosis and prognosis in the various forms of chronic Bright's disease." After giving a classification of the pathological changes found at death, he showed that mixed or transitional forms of disease were common, and that while the diagnosis of the pure types of lesion could be made with fair certainty during life, the difficulty of accurate diagnosis of the transitional forms was considerable. He discussed in detail the clinical phenomena upon which the differentiation might be made, and commented specially upon the fact that some of these had obviously been in existence for months or years before giving rise to definite symptoms, since the patients often presented themselves in the first instance with the disease fairly advanced. In hospital practice the "secondary contracted kidney" was the commonest form of chronic Bright's disease encountered, while the "primary granular contracted kidney" was comparatively rare. He emphasized the importance of the information to be derived from ophthalmoscopic examination of the retina

effort of accommodation. She agreed that emmetropes often retained full power of accommodation long after the age of 45, but added that emmetropes comprised only about 1 per cent. of the population.

FREQUENCY OF MICTURITION.

AT a clinical meeting of the Newport Medical Society, on October 27th, the President, Dr. P. C. P. INGRAM in the chair, an address on frequency of micturition and its diagnosis was given by Mr. T. E. HAMMOND (Cardiff).

Mr. Hammond said that the desire to pass urine coincided with a sudden rise in the intravesical pressure, when the bladder held a volume which was fairly constant for the individual; moreover, when the urine passed over the prostatic urethra in the male and the female urethra, there was a reflex contraction of the bladder, and any change in this region was apt to set up a desire to pass urine. Consequently an increased desire was due to one of the following: increase in the volume of the urine after excessive drinking, in cold weather, in diabetes mellitus and insipidus, and also in chronic interstitial nephritis and hyperpiesia; in oxaluria and hyperacidity; interference with emptying of the bladder at the end of micturition by an enlarged prostate in men and by fibroids of the cervix, urethrocele, and a retroverted gravid uterus in women; conditions which prevented the bladder wall relaxing normally, such as lesions of the mucous membrane—congestion, inflammation, and ulceration; lesions of the muscle coat, seen in fibrosis after inflammation, and extravesical causes, such as ovarian cysts, large fibroids, and the pregnant uterus; lesions of the mucous membrane in the region of the ureteral orifices, the trigone and the prostatic urethra in men, and the urethra in women; irritation of the spinal centres in multiple and disseminated sclerosis and the crises of tabes. Reflex action had probably little effect; the frequency associated with renal colic and a calculus in the lower end of the ureter was probably due to the spasm of the ureteral muscle passing over and increasing the contraction of the bladder muscle. When the frequency was due to polyuria alone it was not accompanied by pain or urgency, and was evenly spaced throughout the twenty-four hours; if the bladder was involved some pain and urgency were often present. If after the completion of the action an equal amount of urine could almost immediately be passed it was due to a diverticulum, a stone, or the enlargement of the middle lobe of the prostate. With a lesion in the trigone or the prostatic urethra there was often an intense and urgent desire to pass urine repeatedly after the completion of the act. In examining the patient particular attention should be paid to the cardio-vascular and nervous systems; but even in the event of definite disease being detected here a careful examination of the genito-urinary tract was always essential, as marked cardio-vascular changes might be secondary to the enlarged prostate. *X* rays occupied a very secondary place to cystoscopy in the diagnosis of bladder lesions. Early diagnosis was of paramount importance in bladder lesions. It was sometimes found that though a lesion of the urinary tract, such as an inflammation, was cured, the frequency persisted owing to the scarring and fibrosis of the muscle, which remained after the original lesion had been cured. Frequency of micturition was not physiological in old age, but was always pathological, and should lead to careful examination of the cardio-vascular system and the prostate. Occurring in adults it should arouse suspicion of tuberculosis, and in doubtful cases a guinea-pig should be inoculated. It was never due to endometritis and was never cured by curetting. Endometritis was not infrequently associated with a chronic cystitis, and in such cases both were due to the same cause—namely, lowering of the general resistance; they were best cured by rest and fresh air. The practice of treating frequency by vaccinotherapy was to be condemned until an examination of the genito-urinary tract had negatived any associated lesion, since, even if bacteria and pus were present, these might be secondary to some lesion of the urinary tract, such as an enlarged prostate or stone. When neurosis was diagnosed the case should be reconsidered every three months, since early organic disease was difficult to detect.

DISEASES OF THE HIP-JOINT.

AT a meeting of the Aberdeen Medico-Chirurgical Society on November 4th, Dr. JAMES CROMBIE, the President, in the chair, Mr. ALEXANDER MITCHELL gave a demonstration of lantern slides illustrating diseases of the hip-joint.

Mr. Mitchell said that the future of a patient suffering from an affection of the hip-joint was greatly dependent upon an accurate diagnosis and a real understanding of certain well established principles of treatment. A periodic review of the methods of treatment must be beneficial to all if such conditions as great shortening and loss of function were to be avoided. In dealing with the subject of tuberculous lesions of the hip-joint, Mr. Mitchell emphasized the fact that in cases, if at all severe and accompanied by bone destruction, there was a persistent tendency for the head of the bone to become dislocated, which condition, left untreated, resulted in shortening of the limb even up to four inches. Fixation of the limb in a fully abducted position with extension prevented this slipping out of the head, and, combined with treatment along modern lines, a cure of the disease would result with probably impaired movement, but with little shortening and subsequent disability. Unless this dislocation, which so readily occurred, was thoroughly understood, even the most careful treatment would not produce the desired result. Many difficulties arose in the treatment of these cases, but they must be overcome if the patient was to get the results which might reasonably be expected at the present day. These difficulties, such as proper fixation and special nursing, could be overcome to a great extent by prolonged institutional treatment and careful observation afterwards. In referring to modern methods of treatment, tribute was paid to the pioneer work of the late Hugh Owen Thomas of Liverpool and to Sir Henry Gauvain and Dr. Rollier. An excellent series of slides was demonstrated, including tuberculous lesions, osteo-chondritis deformans juvenilis, fibro-cystic disease, coxa vara, congenital dislocation, malignant disease, osteo-arthritis, and fractures of the neck of the femur in old people. A plea was put forward for the more active treatment of fractures of the neck of the femur in the aged.

MEDICAL CRIMINALS.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society, on November 4th, an address on some well known medical criminals was given by Dr. L. A. PARRY.

Dr. Parry said he would not deal with such famous medical poisoners as Palmer, Pritchard, and Lamson, but rather with less widely celebrated instances. His first example was that of Dr. Warder of Brighton, who, in 1866, poisoned his wife by means of aconite, and then, when suspicion was aroused, himself took prussic acid. Two previous wives had died in suspicious circumstances, and there was very little doubt that he had also poisoned these. The case aroused very considerable interest at the time. Dr. Alfred Swayne Taylor, who examined the viscera, said he was unable to find any poison, although he had carefully tested for all the well known alkaloids, including morphine, strychnine, and aconitine, and that injections from the organs into a rabbit had had no harmful effect; yet after hearing the evidence of the victim's medical attendant he was of opinion that aconite poisoning was the cause of death, and the jury returned a verdict to that effect. Warder had been a lecturer on forensic medicine at the Grosvenor School, adjoining St. George's Hospital, and was one of the many members of that school who gave evidence in favour of Palmer, the infamous poisoner. The judge at Palmer's trial had made some rather scathing remarks on these witnesses, blaming them for being advocates determined to prove the innocence of the prisoner rather than medical witnesses. Dr. Parry mentioned various other cases of poisoning by doctors, including Smethurst, who bigamously married a lady and then killed her for her money. He was convicted and sentenced to death, but, owing to a mistake made by the Government analyst, doubt was cast on the justice of the verdict and the Home Secretary took the unprecedented course of referring the whole of the evidence to Sir Benjamin

sphere of neuropathology before the war, and the value of his unsparing and devoted work on behalf of the war-shocked soldier, both during and after it, can scarcely be overestimated.

THE PROTEINS.

IN *Chemistry of the Proteins, and its Economic Applications*,[5] Dr. DOROTHY JORDAN LLOYD offers us a very useful little monograph, though we suspect that she is more in sympathy with the chemistry of her subject than with its industrial aspects.

It has been the habit of some teachers to treat the proteins as a race apart, undisciplined to the conventions of molecular behaviour. True, they are built of the same clay as other substances, but their peculiarities of conduct are held to betray an unnatural unbringing. For this view there is reason enough in the idiosyncrasies of protein behaviour, but the regrettable consequence has been that this group of compounds has not, on the whole, been seriously treated by the organic chemist. It has been the privilege of the last few years to show that an enlightened use of physico-chemical precept, building upon the solid analytical foundations laid by the masters of biochemistry, could tutor many of the vagaries of protein behaviour to classical conventions. The story is well, but not exhaustively, told by the author, who thereby gives us—what we had lacked—a monograph in our own tongue on the position of protein chemistry in its analytical, synthetic, colloidal, physico-chemical, and applied aspects. The balance is, on the whole, well maintained, and a student, baffled by the elusive treatment of the subject in many general textbooks on chemistry, should derive real satisfaction from this work.

Phenomena are not always so abstruse as the labels that are fixed to them, and—as this book shows—a considerable understanding of much in the behaviour of proteins may be achieved without great subtlety of argument or ingenuity of nomenclature.

RENAL SURGERY.

F. McG. LOUGHNANE has written *A Handbook of Renal Surgery*[6] for the use of students and practitioners, and has aimed at presenting in as concise a manner as possible a complete up-to-date statement of practical renal surgery. The title of the book is, however, somewhat misleading, for far more space is given to diagnosis and methods of examination than to treatment. Indeed, it is not so much a handbook of renal surgery as a guide to modern methods of diagnosis, and particularly to pyelography. The subject matter is illustrated by numerous pyelograms which must go far to convince any reader who is not acquainted with the refinements of modern methods of diagnosis of what great advances have been made within the last ten years. In addition to the pyelograms, the book contains some excellent pictures of the kidney after oxygen inflation of the perirenal tissues. The text accompanying these radiographs is written in a clear concise style and is eminently practical in its outlook. As stated above, the signs and symptoms of renal lesions have been discussed in Mr. Loughnane's book with far greater thoroughness than the methods of treatment applicable to these conditions. It is indeed in his handling of renal surgery treatment that a certain loss of proportion is apparent when the aim of the work is borne in mind. Quite apart from such statements as that in hydatid disease "an attempt should be made to remove the cyst *in toto*," a piece of advice with which most people who have had to deal largely with echinococcus of the kidney will probably quarrel, the operative surgery of the kidney has been dealt with so briefly that the work cannot serve as a guide to treatment. Though the book falls short in this respect, what it says is sound, well written, and well illustrated.

[5] *Chemistry of the Proteins and its Economic Applications.* By Dorothy Jordan Lloyd, M.A.Cantab., D.Sc.Lond., F.I.C. Introduction by Sir Frederick Gowland Hopkins, M.B., D.Sc., F.R.C.P., F.R.S. London: J. and A. Churchill. 1926. (Post 8vo, pp. xii + 279; 48 figures. 10s. 6d. net.)

[6] *A Handbook of Renal Surgery.* By F. McG. Loughnane, F.R.C.S. London and New York: Longmans, Green and Co., Ltd. 1926. (Demy 8vo, pp. xiv + 210; 46 figures. 10s. 6d. net.)

THE CONTROL OF CANCER.

Cancer, its Control and Prevention: A Book Everyone Should Read,[7] by the late Dr. HALL-EDWARDS, is a small volume intended to give the public what ought to be common knowledge with regard to cancer, an ignorance of which is responsible for a preventable shortening of the lives of a large number of persons. The author emphasizes two directions in which there is room for improvement—namely, an earlier application for treatment than is frequently the case, and the avoidance of recognized causes of cancer. With regard to the first point, a patient cannot be expected to appreciate the grave significance of many apparently trivial symptoms. The problem is to educate him to recognize what symptoms he must not regard as trivial until he is confirmed by medical authority. With regard to the second point he has to be taught to realize the importance of irritation as a factor in the causation of cancer, and to know the common forms of irritation that should be avoided or not allowed to continue. Dr. Hall-Edwards's book supplies much information on these matters; he considered that the objects aimed at could be best attained by means of a vigorous propaganda. He suggested measures on the lines of the campaign of the American Cancer Control Committee, and expressed a hope that the Ministry of Health might authorize the formation of similar committees to undertake the propaganda. The American committee favours propaganda through the daily press; we are inclined to think, without any desire to prejudge the question, that in this country the daily press would not be a suitable agency for the purpose. It is difficult to formulate a practicable scheme, but it seems that, even with the existing organization, more might be done than is done by that large body of practitioners who may be called "family doctors." It is probable that they could be very helpful in drawing their patients' attention to the matter and gradually inculcating the habit of bearing it in mind. It would seem to be an important part of preventive medicine, and falls well within their sphere.

MONGRELS.

MESSRS. ARTHUR H. ESTABROOK and IVAN E. MCDOUGLE's book *Mongrel Virginians*[8] is a study of descendants of four men—one a white, the others Indians—who settled in the foot-hills of a mountain range in Virginia. There was much subsequent intermixture of blood with negroes and Indians, and the group has experienced the social ostracism to be expected in a society where colour is a class distinction. A result has been that matings tended to be frequent within the group; in the fifth generation 58.6 per cent. of the matings were within the family, in the sixth generation, not yet completely paired, 37 per cent. of the unions have been consanguineous. The group consequently presents many of the characteristics of a separate community, and this book is a detailed record of the characteristics of the individuals, followed by a brief statistical summary of the results and their interpretation.

Reviewers are often accused by disgruntled authors of not reading the books criticized. This reviewer must confess that he has only read a small proportion of the 130 pages devoted to individual descriptions, of which the following is a typical specimen:

> "Oneida, the last of this fraternity, born 1896, light in color, has little education, and has been a prostitute for some years. She has had two illegitimate children, one by Lloyd Jones, now with its father, and 'B,' 'of mixed blood,' who died in 1914, soon after birth, from what was supposed to be mumps. She is 'no good.'"

Even the life stories of the many bold bad women, such as Abigail, who, although never married, wears two huge brass wedding rings and has borne eight illegitimate children, or Hepsy, who was a "promising girl" "when

[7] *Cancer, its Control and Prevention (Education will Lower the Death Rate): A Book Everyone Should Read.* By John F. Hall-Edwards, L.R.C.P., L.M.Edin., D.R.M.E.Cantab., F.R.S.Edin. Birmingham: Cornish Brothers, Ltd. 1926. (Cr. 8vo, pp. 88. 2s. net.)

[8] *Mongrel Virginians: The Win Tribe.* By Arthur H. Estabrook and Ivan E. McDougle. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1926. (Cr. 8vo, pp. 205; 21 illustrations. 13s. 6d. net.)

Reviews.

ULTRA-VIOLET LIGHT.

ONE of the most satisfactory features of the more recent books on ultra-violet therapy is that they are becoming increasingly practical and begin to record the results of clinical experience. Dr. BELL FERGUSON'S little book on the *Quartz Mercury Vapour Lamp*,[1] which is none the less valuable because it deals with a single type of illuminant only, can safely be recommended to anyone who desires a good practical introduction to ultra-violet light therapy. His notes on the historical and purely physical side of the subject are clear, concise, and interesting, and are illustrated by a chart of the whole range of electro-magnetic waves. These waves vary from the gamma rays, which have a length of about a ten-millionth of a millimetre, up to the waves employed in wireless work (and waves even beyond those), which have a length of 2,000 metres and more. Between the two extremes are *x* rays, the ultra-violet rays, the visible light rays, and the infra-red or heat rays. To those who are comparatively untutored in the mysteries of modern physics, this chart, which was originally made by the Royal Society for the Wembley Exhibition, gives a concise picture of the nature and powers of all the different varieties of electro-magnetic radiations. The more important section of the book is, of course, that devoted to the use of the mercury vapour lamp and the results achieved with it. Dr. Bell Ferguson recommends that made by Messrs. Kelvin, Bottomley and Baird; in it there is no vacuum, and it is more constant in output and of longer life than the types in which a vacuum is present. Moreover, it is of British manufacture. He gives full details of the methods and dosage employed by himself in various types of case, both as regards the length of exposure, the distance of the patient from the lamp, and whether general or local irradiation is preferred. In fact, after reading this book with care, any practitioner could safely begin to use ultra-violet light in treatment, and we think that this is the best testimony that can be given to its value. In addition, it may be added that although the author is obviously keen on the subject, as is proper, he makes no extravagant claims for the healing powers of ultra-violet irradiations, and gives a scrupulously fair account of his own experiences in their use. The book is fortified by a preface by Sir Henry Gauvain, who is well known as one of the pioneers, in this country at all events, of light treatment in surgical tuberculosis, and who cordially recommends the work to the medical public.

Although, as has been implied above, ultra-violet light has become increasingly popular in this country during the last three or four years, it will come as a surprise to many that since 1907 it has been in use in Germany for the treatment of baldness, with results undoubtedly worthy of serious consideration. Dr. NAGELSCHMIDT, whose book first appeared in 1913, has collected in a new edition[2] 200 cases, all treated locally with ultra-violet light. He excludes 43 of these from his statistics as the knowledge of their subsequent history is insufficient, but of the remaining 157 he gives details: 104 of them were cases of alopecia areata, of every degree of severity; 80 he claims as cures, 16 as showing improvement; in 8 the condition, he admits, was unchanged. He succeeded even in curing 6 cases of total alopecia, and out of 18 such cases only 4 were entirely unaffected by the treatment. Perhaps the most striking of his results are those he claims for the 53 cases of seborrhoeic alopecia; all are stated to have been cured. As this is a disease which is the cause of the common type of baldness in men, the gradual thinning and disappearance of the hair over the crown and temples, our interest was naturally aroused, and we hoped that baldness (which is known even among dermatologists) would soon become a thing of the past. Examination, however, of the details of the cases given dashed our hopes. Many of the patients were females, in whom the affection seldom leads to denudation of the scalp; others were described as cured owing to the cessation of scaling and irritation of the scalp; and as regards the hair itself the report was merely that it was "essentially thicker." Consequently we came to the conclusion that although in all probability benefit is to be derived from the use of ultra-violet light in such cases, it does not provide the specific cure which is desired. Dr. Nagelschmidt uses a quartz mercury vapour lamp, air-cooled, of a type which is now familiar in this country, made by the quartz lamp company of Hanover. For directions as to the time of exposure, precautions to be taken, the interval to be allowed between the sittings, and other details, we must refer the reader to the original. Ultra-violet light is now well established as a treatment for alopecia areata, and it probably deserves to be employed more often in the treatment of alopecia of the more ordinary type. Dr. Nagelschmidt is a pioneer in this field, and we are indebted to him for providing an account of his methods which will enable others to follow them.

In *Sunlight and Artificial Light*[3] Mr. HAROLD WIGG gives a short and simply written exposition, intended for the use of nurses, of the nature of ultra-violet rays and of their application in the treatment of some diseases. The descriptions are given in clear, though occasionally flowery, language, and a few figures and illustrations help the reader. Mr. Wigg states that light is a potent drug which cannot be used indiscriminately without danger. He deprecates also the tendency to regard light as a panacea for all evils. We note, however, that advertisements in the booklet urge the reader to have the magic of the sun-bath in his own home at the cost of less than 2d. a bath.

EPILEPSY.

DRS. R. G. ROWS and W. E. BOND have written a volume entitled *Epilepsy: A Functional Mental Illness*,[4] which, as its subtitle suggests, seeks to develop the thesis that the various symptom-complexes to which the term "epilepsy" is usually applied are determined by previous psychic occurrences with strong emotional colouring. On the basis of such an etiology the authors deprecate the use of drugs, and advise a simple life, the avoidance of strain and excitement, and psychotherapeutic measures consisting of explanation, exploration, and re-education.

We cannot but feel that much more evidence in support of this theory than appears in this volume is required in order to make it convincing. The conclusions reached are based largely upon the study of "shell-shocked" soldiers, and in these cases it was only to be expected that the study of the psychic content should reveal the existence of unpleasantly toned emotional complexes. It is quite conceivable that the terrible experiences of these patients were in a measure instrumental in the production of epileptic manifestations. Further than this it would seem difficult to proceed with the authors in their attempt to formulate a general theory of epilepsy. Furthermore, though a psychological understanding of the epileptic is necessary for the carrying out of treatment, drugs are often unquestionably of considerable value. Many epileptics, whose lives are rendered almost useless by the disease, are able to mix with their fellows and earn their living under a suitable drug régime.

In the preface to this volume Dr. Bond explains that at the time of the death of Dr. Rows this monograph was "in the rough," and that he was placed in a difficult position by the loss of the co-operation of his colleague. We are grateful to him for publishing this work, not only because it contains a number of interesting discussions and observations, but also because it affords an opportunity of paying some slight tribute to the work of his collaborator. Dr. Rows was responsible for much notable research in the

[1] *The Quartz Mercury Vapour Lamp.* By J. Bell Ferguson, M.D., D.P.H. With an Introduction by Sir Henry J. Gauvain, M.A., M.D., M.C. London: H. K. Lewis and Co., Ltd. 1926. (Demy 8vo, pp. xii + 106; 34 figures. 6s. net.)

[2] *Die Lichtbehandlung des Haarausfalles.* Von Dr. Franz Nagelschmidt. Vierte Auflage. Berlin: J. Springer. 1926. (Med. 8vo, pp. 82; 89 figures. R.M.3.90.)

[3] *Sunlight and Artificial Light.* By Harold Wigg. London: Faber and Gwyer, Ltd. 1926. (Cr. 16mo, pp. vii + 96; 15 figures. 1s. 6d. net.)

[4] *Epilepsy: A Functional Mental Illness: Its Treatment.* By R. G. Rows, M.D.Lond., and W. E. Bond, M.R.C.S., L.R.C.P. London: H. K. Lewis and Co., Ltd. 1926. (Demy 8vo, pp. viii + 138. 8s. net.)

British Medical Journal.

SATURDAY, DECEMBER 4TH, 1926.

HARVEY'S INFLUENCE IN EDINBURGH.

THIS issue of the JOURNAL opens with the oration recently delivered by the President-Elect of the British Medical Association, Sir Robert Philip, on the occasion of the Harveian Festival of the Edinburgh Harveian Society, which has flourished for a century and a half. In his interesting and graceful outline of the life of Harvey, Sir Robert suggests that in his capacity of Physician Extraordinary to King James he might have come into contact with Shakespeare, who was a Court servant. The possibility of this relationship is undeniable, but there is no available evidence one way or the other. William Harvey, equally with William Shakespeare, was not for an age but for all time, and not for one country but for "states unborn and accents yet unknown"; and Edinburgh and the Scots, ever hungry for the fruits of the spirit, have done well to honour the founder of modern physiology. When we look back on the careers of the physicians of the sixteenth and seventeenth centuries we realize how international science then was. The Italian universities welcomed scholars from all parts of Europe, as did the Dutch schools of learning, which were especially frequented by the Scots. The familiarity of all educated men with the Latin language, which they learnt and used as a living and not as a dead tongue, rendered this intercourse and international understanding easy. Latin came as readily to Harvey's tongue and pen as French does to a modern diplomatist, and very little by him is extant in any other language.

Small wonder that Edinburgh should have its Harveian Society, although all records of the personal influence of Harvey in that city are lost. We know that in 1633 he accompanied his royal master on his visit to Scotland, and it cannot be doubted that his inquiring mind led him to seek out all or any of the Scottish physicians who had pretensions to scientific attainments—if, indeed, as seems more likely, they did not seek out the celebrated discoverer of the circulation of the blood. Unfortunately, all the record that we have of this visit is that passage in the work on the generation of animals in which Harvey describes the Bass Rock and its sea-birds, and dismisses as mere hearsay the stories of the generation of geese from the fruits of certain trees that had fallen into the sea. Even this treatise might not have come down to us but for Dr. Ent, to whom all later physiologists should return thanks; for Harvey in his age was discouraged and weary, but still working, and, as he said, "did I not find solace in my studies, and a balm for my spirit in the memory of my observations of former years, I should feel little desire for longer life."[1] He had suffered irreparable loss when his house was pillaged and the fruits of many years of toil were taken from his museum, so that, as he said, "many observations, particularly on the generation of insects, have perished, with detriment, I venture to say, to the republic of letters."

[1] This and other quotations are from Dr. Robert Willis's translation of the works published by the Sydenham Society, London, 1847.

There had been talk in Edinburgh of a College of Physicians for some years before the visit of King Charles I and his Physician in Ordinary, and Sir Robert Philip suggests plausibly that Harvey was consulted on these proposals, as well as on others for the institution of a school of medicine as part of the "Tounis College," which afterwards became the University of world-wide fame. If in fact Harvey, who stood for all that was best in the spirit of the Royal College of Physicians of London in his day, and who was so much devoted to its interests, had no part in the proposals for the foundation of its younger brother of Edinburgh, yet we may be sure that he would have cordially welcomed its birth, which, however, did not take place till the year 1681, twenty-four years after Harvey's death and one hundred and sixty-three years after Henry VIII granted a charter to the London College. At least we know that his faithful disciple Sir Charles Scarborough, physician, mathematician, and anatomist, who accompanied the Duke of York to Scotland in 1679, had a good deal to do with the foundation of the College, and we can hardly doubt that he was thoroughly imbued with Harveian ideas.

Sir Walter Scott has painted vivid pictures of the conviviality of the lawyers of Edinburgh in his time. The leaders in medicine do not seem to have lagged behind them, for the Harveian Society, which grew out of the Aesculapian Club, was convivial as well as learned, and we suspect that its earlier name, or nickname, of "The Circulation Club" may have referred to the circulation of the bottle as well as of the blood. Sir Andrew Duncan, the "father" of the Royal College of Physicians of Edinburgh, records that Alexander Monro (*secundus*), the greatest of the three anatomists of that name, was a distinguished member, and that "without transgressing the bounds of the most strict sobriety, he afforded us demonstration of the exhilarating power of wine." Duncan himself was, as Sir Robert Philip tells us, promoted in 1815 to the degree of Doctor of Mirth, from which circumstance we may conclude that exhilaration on the occasion of Harveian banquets was not peculiar to Monro. The traditional day of meeting was April 12th, which is referred to as the birthday of Harvey, who, however, was born, like Prince Bismarck, on April 1st. Evidently the members of the Circulation Club were so conservative as to mark their opinion of the reform of the calendar by dining on the first of April, Old Style.

The Harveian Society of Edinburgh was established under that name in the year 1773, the same in which Dr. Samuel Johnson arrived in that city on his way to the Hebrides with the faithful Boswell, whose acquaintance was largely among lawyers, so that the great man was not introduced to many doctors. But he met the celebrated William Cullen, who seems to have humoured him dexterously; also Sir Alexander Dick, who was President of the Royal College of Physicians for seven years, and then retired of his own free will; as well as Dr. James Gregory, not long afterwards appointed to the chair of the Institutes of Medicine at the early age of 23. This versatile, witty, and quarrelsome man published an essay on "The theory of the moods of verbs" which would hardly have appealed to Harvey, who held with Galen that we should but agree about the things, and not dispute greatly about the words, for, as he says in another place, "We are too much in the habit, neglecting things, of worshipping specious names." Again, in a letter to Slegel of Hamburg he wrote: "You counsel well when you say, 'only make sure of the thing, call

young," but "became a prostitute when in her youth" (a subtle distinction, this, between being young and in one's youth), and "has an ugly temper which she uses occasionally, especially towards her mother," are not deeply interesting, and one hastens to the conclusions. They are these: that the whole tribe is below the average, mentally and socially, and that, considering the remoteness of pure Indian blood, the persistence of Indian traits among them is remarkable. "When one sees a group of men walking along the county road they will always be found parading in single file and for the most part non-communicative." The authors infer from their rather meagre statistics (125 reproducing females) that the fertility of the group is above average, but without a comparison with agricultural families from the same part of the country this conclusion cannot be accepted as proven. The authors also seem to hold that the data are evidence against the social expediency of mixed marriages. But in speaking of one of the unsocial traits of the group they remark that "this may be largely due to their geographical and their even greater psychological isolation throughout life." Altogether apart from any biological considerations, one would not expect a socially ostracized minority to score high marks when examined by the standards of the majority.

This book represents a great deal of work, and is, let us hope, of scientific value. But its authors do not display much literary skill, and, since to present their case readably would require great literary skill, the book is not easily readable. These are raw materials rather than a finished product.

SURFACE CHEMISTRY.

It is well known that the surface of a solid or liquid exhibits properties which belong to the surface alone, and are not shared by the interior part of the substance. Dr. E. K. RIDEAL's *Introduction to Surface Chemistry*[9] treats of the effects taking place at the surfaces which separate contiguous bodies dealing with them as functions of chemical constitution. The purely physical properties of surfaces have been the subject of research since the early days of experimental science. More recently many of the known phenomena have been co-ordinated and interpreted in terms of the reciprocal chemical relationships of the participating substances. The examination of such relationships has now been so far extended in this sense that a basis is afforded for the explanation of all that takes place between matters which do not destroy each other's identity on contact.

The study embraces the primary causes leading to the formation of emulsions and colloids, and enters into adsorption and its attendant phenomena of catalytic activity. The nature of the effects induced at the interface of contiguous matters being determined by the forces exerted on the individual molecules or by the energy they possess, the ultimate explanation of their behaviour is resolved into a consideration of these terms. The study is thus a branch of molecular physics having a special regard to chemical effects. It is therefore necessarily given a mathematical treatment. This fact need not prove a serious obstacle to the ordinary reader. The mathematical expressions are not generally beyond the reach of the student of physics and chemistry; they are nowhere an embarrassment, and the text supplies an adequate introduction to the basic facts and their consequences. Dr. Rideal's treatment of the subject is systematic; it is set on a broad basis dealing with many aspects of the various problems. The book is ostensibly prepared for those beginning their acquaintance with the subject, and is written, we are happy to note, with a measure of sympathy for their powers of perception, for we have not infrequently seen a style in textbooks much like that of a candidate writing for his examiner, and presenting a context sufficient to demonstrate the writer's knowledge but not well suited to enlighten the uninformed. This book is one of the first, if not the first, to make of the subject the special study which it is destined to become. There is hardly a branch of knowledge that does not owe some debt to research on the behaviour of the single molecule, and particularly its behaviour when it occupies a place at the surface of the body to which it belongs. It would be safe to say, for example, that nothing is known of lubrication save what is revealed by surface chemistry. Physiology and a number of other sciences must become more and more directly dependent on what is taught by the facts and theories of this special province. Dr. Rideal has prepared a useful book, which must become a necessary part of the equipment of every scientific reader.

[9] *An Introduction to Surface Chemistry.* By Eric Keightley Rideal. With a preface by Professor F. G. Donnan. Cambridge: The University Press. 1926. (Demy 8vo, pp. vi + 336. 18s. net.)

NOTES ON BOOKS.

THE third number of this year's volume of the *Annals of Medical History*[10] has on the cover a portrait of Sir William Lawrence (1783-1867), that commanding personality and orator who was on the surgical staff of St. Bartholomew's Hospital for fifty-two years (1813-1865). The account of his life, taken admittedly in part from Sir Norman Moore's *History of St. Bartholomew's Hospital*, has special reference to his ophthalmic work. The frontispiece, representing the first Alexander Monro, illustrates an editorial article on the early teaching of anatomy at Edinburgh, based on an article published some four years ago by Dr. J. D. Comrie. The account of John Redman of Philadelphia contains the history of the founding in 1786 of the College of Physicians, of which Redman was the first president. In a scholarly article redolent of much research Dr. C. G. Cumston traces the history of herpes from the time of Hippocrates to the early years of the nineteenth century. Dr. Roy L. Moodie's account of an alveolar abscess in the mandible of a rhinoceros belonging to a group of running mammals which have been extinct probably for millions of years is of special interest in view of the rarity of dental disease in fossil vertebrates. Dr. W. G. Aitchison Robertson's article on the use of unicorn's horn, coral, and stones in medicine discusses the origin of the unicorn myth. Other articles in this number are on the teachers and textbooks in use during the thirteenth and fourteenth centuries in Paris, on Pepys's account of the plague, on Bernard de Mandeville's "Fable of the Bees," and on the operative story of the heart.

What it Feels Like[11] is an attractively written series of letters to a medical friend by "Doctor Robin," who has plenty of breezy humour, and, indeed, does not take himself very seriously, for after his degree and diploma on the title-page he adds: "Holder of the usual sort of hospital appointments, and author of the usual unimportant treatises." His description of the life of a medical missionary in China covers the five years ending February, 1925, and breathes a wholesome muscular Christianity and genial charity. The account of the varied life and wide opportunities for medical work in the Chinese mission field should make recently qualified readers in search of a career consider such a life, when the present troubles in China have passed away.

The twenty-second volume of *The Ophthalmic Year Book*[12] contains bibliographies, digests, and indexes of the literature of ophthalmology for the year 1925. The information is arranged under anatomical, physiological, and pathological headings, and each reference is accompanied by a short abstract of the book or article concerned. Good indexes of authors and subjects are appended, and ophthalmic surgeons will find this a most valuable key to recent work in their specialty.

The Motor Electrical Manual,[13] which has reached its third edition, essays the difficult task of explaining to the owner-driver the electrical contrivances upon which the running of his motor car now so largely depends. Elementary explanation of electrical principles is given in sufficiently non-technical language, together with the information required for maintaining the working of the equipment. Some of the statements made are perhaps not quite forcible enough; thus, to say that "it would not be possible to . . . use 6-volt bulbs on a 12-volt equipment" hardly conveys a full impression of what would result from the attempt.

[10] *Annals of Medical History.* Vol. VIII, No. 3, September, 1926. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. 1926. (8¾ × 12½, pp. 213-330; illustrated. Subscription in Great Britain £2 2s. per volume of four numbers.)

[11] *What it Feels Like: Letters from a Doctor out East to a Colleague at Home.* By "Doctor Robin," M.A.Oxon., M.R.C.P.Lond. With an introduction by Sir Humphry Rolleston, K.C.B., M.D. London: Student Christian Movement. 1926. (Cr. 8vo, pp. 78. 2s. net.)

[12] *The Ophthalmic Year Book.* Vol. XXII. Edited by William H. Crisp. Chicago: Ophthalmic Publishing Company. 1926. (Roy. 8vo, pp. ix + 315; 9 figures.)

[13] *The Motor Electrical Manual.* Third edition, revised. London: The Temple Press, Ltd. 1926. (Cr. 8vo, pp. vi + 175; illustrated. 2s. 6d. net.)

There are at this moment in different parts of the Empire a large and increasing number of institutions devoted to research. They provide a basis to work on. Let easy exchange be cultivated between them, and full co-operation will follow. Intellectual waste will thus be diminished, and investigators in the same scientific field, though far separated in space, will be able to work together as partners.

In these two pronouncements Lord Balfour glances at research from two slightly different angles. In one he is concerned with the medical pioneer working under difficulties, in the other with the economic research worker in an organized institute who has ample resources to his hand. In both cases, however, he equally lays stress on the need for exchange of ideas and results, in order to prevent overlapping and save time and labour. It would appear to be not less needful that the results of work in the institutes and scientific departments of the various Governments of the Empire, both in England and overseas, should, when completed, be published in such a manner as to be readily accessible, not only to Government departments, but also to scientific workers in general. The Medical Research Council in this particular has set a good example. The reports of its observers are usually published as pamphlets of handy size, and at a price which is doubtless as favourable to purchasers as circumstances permit. Reports buried in reports of local governments escape the notice of many who would gladly profit by their perusal, and the medical and scientific press, desiring to do the best for its readers, cannot reproduce them verbatim for the information of the few, to the exclusion of topics of more general interest. A scheme of authentic publication, like that of the Medical Research Council, would, if adopted by Governments and their departments, greatly help the scientific worker. It would bring within his reach authoritative information on his own subject in a convenient form, and, amid the mass of material in the guise of science which pours at the present time from the printing presses of every civilized country the whole world over, it would give him, if not always "some new thing," at least some sure thing to guide his further progress. Such a scheme, as an adaptation of the principles commended by Lord Balfour, would advance the cause of true research.

CENTENARY OF LAËNNEC.

It is a hundred years since the death of the illustrious Laënnec, and it is also exactly a hundred years since the second edition of his masterly work the *Traité d'Auscultation* was published. The Académie de Médecine has taken the initiative in celebrating this double anniversary by a series of séances on December 13th, 14th, and 15th. On the afternoon of Monday, December 13th, receptions will be given at the Académie de Médecine and the Hôtel de Ville; in the evening there will be another at the Sorbonne in the presence of the President of the Republic; addresses will then be given by the Rector, Professor Ménétrier (on the discovery of auscultation), by Professor d'Arsonval (on Laënnec and the Collège de France), by Professor Roger (on Laënnec and the Faculté de Médecine), and by Professor Léon Bernard (on tuberculosis since Laënnec); after these, addresses from the foreign delegates. On Tuesday, December 14th, there will be in the morning a visit to the Musée Carnavalet; at 3 p.m. a sitting at the Académie de Médecine and addresses by Professor Bar, by Professor Miraillé (the medical beginnings of Laënnec), by Professor Letulle (Laënnec as a pathologist), by Professor Sergent (Laënnec as a clinician), and by Professor Achard (the role of Laënnec in the evolution of medicine). There will also be an exhibition of souvenirs. On Wednesday, December 15th, there will be a reception at the Hôpital Laënnec and an address by Dr. Rist, followed by a visit to the Hôpital Necker and the Hôpital de la Charité. In the afternoon, during a visit to the Institut Pasteur, Dr. Calmette will give an address on the prevention of tuberculosis since the days of Laënnec. The fêtes will close with a banquet the same evening at the Palais d'Orsay. All who desire to join in these interesting ceremonials should communicate with the Secretary-General, Dr. Roussy, 21, Rue de l'École de Médecine, Paris, 6. We understand that the Royal College of Physicians will be represented by Sir John Broadbent, and that the Royal Society of Medicine has nominated Sir StClair Thomson as its delegate.

GENERAL MEDICAL COUNCIL.

THE winter session of the General Medical Council was unusually brief, lasting only four days, and the disciplinary cases were few in number and raised no novel points of professional conduct. Not a single case was concerned with misleading certification or with "covering," and the one case in which the complaint related to advertising had to do with an Indian practitioner advertising in a Burmese newspaper. Three of the cases related to charges of drunkenness. One of these was dismissed with a caution, and in the other two judgement was postponed for twelve months to give the respondents time to consider their position. In another case the charge was that of professional relationship during adultery. The usual defence in such charges is that professional relationship had ceased before adultery began, but in this case the defence was that the adultery preceded such professional relationship as existed. The Council dismissed the case. The inquiry which occupied the longest time concerned a complaint against a practitioner for unprofessional conduct towards a female patient, the patient appearing as complainant. The solicitor for the complainant asked that the case might be heard *in camera*, and the solicitor for the respondent having no objection, the Council agreed, and strangers, including the press, withdrew. The result of the case was the erasure of the name from the *Medical Register*. The remaining business of the Council was disposed of in half an hour; it consisted of reports of committees which dealt merely with routine matters, but the Council considered for a long time *in camera* the question of the restoration of certain names to the *Register*. The President's introductory address was printed in full in last week's SUPPLEMENT (p. 225), and our report of the session is continued this week.

THE TERMINOLOGY OF VISION.

WRITERS of scientific treatises have constantly to beware of the danger of their readers misunderstanding the technical terms they use. In the absence of a technical dictionary the reader may tuck away the phrase or word in his mind for future reference, or may presume it to mean something different or less exact. Moreover, scientific terminology is constantly widening. A technical dictionary is quickly out of date, not merely because new terms are invented, but because old terms are dropped or are given a more restricted meaning. Take such a common expression as the fundamental unit in photometry—"candle-power." When we discuss the brightness of a lamp we speak of it as of high or of low candle-power. Hitherto this has been a general expression for brightness, but photometrists have lately introduced the term "luminous intensity" for use when no actual measure is involved, and have reserved the term "candle-power" strictly for intensity as measured by the international candle, a unit

it what you will.' " Harvey's clear and penetrating mind had little tolerance for verbal subtleties.

We may safely predict that the visitors at the Annual Meeting of the British Medical Association next July will find that hospitality and conviviality—within the limits of becoming mirth—are still practised on a generous scale in the venerable capital of Scotland, as they were on the occasions of former Annual Meetings there, when Alison, Christison, and Grainger Stewart successively adorned the presidential chair of the Association. Edinburgh, as is truly stated by the writer of another interesting article in this issue, powerfully stirs the imagination of all who know anything of its history, even if only through the pages of Scott and Stevenson. Like London, it had its Guild of Surgeons and Barbers, and, unlike London (which had to wait three centuries for its University), it had that celebrated child of the Reformation, the " Tounis College," founded in 1582, to which was added later a medical faculty that became in the eighteenth century of world-wide reputation. The union with England conferred great benefits on both countries, and, so far from prejudicing the University of Edinburgh, it increased its fame and its importance by attracting Englishmen, especially from the northern counties of the sister kingdom.

LORD BALFOUR ON RESEARCH.

THE EARL OF BALFOUR has recently had occasion to deal with scientific research in two separate pronouncements, one relating particularly to medicine, the other in more general terms. Through his position as chairman of the Medical Research Council he has been afforded the opportunity of gaining a sympathetic insight into the aims and methods of research workers, while his philosophic temper and breadth of vision enable him to survey the wide domain of their activities with understanding. His views on research are therefore significant, and must command attention. Research in the common phrase may be taken to mean careful and diligent inquiry. In its scientific application it implies in addition the quest of something unknown. The serious research worker, having followed the made road to its termination, must pass beyond it into the undiscovered land where his field of action lies. The confirmation of points not fully known or insufficiently attested may for practical purposes be held to be included within the purview of research, but its true aim, its ultimate object, is " some new thing."

In his speech at the dinner of the Royal Society of Tropical Medicine and Hygiene, noticed in the JOURNAL last week (p. 1013), he put the case of a young medical graduate who goes out to a remote part of the Empire and finds himself forced by his sense of the situation to undertake research. Research conducted under these conditions must inevitably differ to some extent from work done at home. This is not to say that scientific work of high precision may not be carried through with conspicuous success in quite unfamiliar surroundings. The researches of Professor Barcroft and his party on the respiratory function of the blood at high elevations on the Andes are comparable in method and equivalent in accuracy to similar work at mean levels. But Barcroft's party had a travelling laboratory and lived in comfortable houses. The Everest expedition of 1924, on the other hand, could take no laboratory with them. They had no protection, save that of tents, from the icy mountain winds. Undeterred by the hardships which beset them they made unique observations, but it was physically impossible for them to prosecute research of a sustained or elaborate kind. The case of Lord Balfour's medical graduate in some tropical outpost of British rule is, *mutatis mutandis*, akin to that of the Everest expedition. Though free from the distresses of life at high altitudes, he may suffer instead from the exhausting effects of hot humid air or endemic disease. Burdened with routine work, and, if he is a mobile officer in an undeveloped country, unable to take much scientific equipment about with him, he finds himself faced with medical problems, and sets himself to the task of their solution. His work in the circumstances described is a true research. He has passed beyond the made road of medical science. He is dealing with " some new thing." Even if the disease which is the subject of his investigation should prove in the end to be known elsewhere, his struggle has not been unavailing. He has established the fact of its presence in his area, he has made some contribution to its etiology and initiated measures which may ultimately lead to its extinction or effective control.

The second of Lord Balfour's two pronouncements, which relates to research in more general terms, forms an introduction to the Report of the Research Special Subcommittee of the Imperial Conference set up to consider the question of research from the economic standpoint. The subcommittee suggested to the Conference the need for the fullest practical co-operation between the organizations within the Empire respectively responsible for agricultural, fisheries, forestry, medical, and industrial research, the quick and orderly exchange of results, and the fullest possible discussion of problems of common interest. The subcommittee did not consider that all imperial research organization should necessarily be centred in Great Britain: an organization for veterinary science, for example, might conceivably be set up in South Africa. Gaps in knowledge might usefully be discussed at the conferences which they propose. For medical purposes good co-ordination would be effected if each part of the Empire were permitted to nominate a representative to the quarterly standing conferences of the Research Council.

In presenting the report of the subcommittee Lord Balfour recalled, among other things, that neither money nor organization can increase the supply of original scientific genius. This is a pertinent reservation which is sometimes too little remembered. Money and organization can provide well furnished premises, suitable to be places of research, but they cannot ensure the provision of the mental equipment necessary for turning them to the highest uses. The most lavishly fitted laboratory, uninspired by some creative mind, will never produce first-grade work. The worker is the essential factor, not the workplace. Epoch-making researches of gifted men have before now been carried out with modest or meagre laboratory equipment. Pasteur's best work was done under such conditions, for the Pasteur Institute came as a recognition of his greatness, not as a means to it. But, given a creative mind to animate and direct, a well equipped laboratory or institute for the promotion of research is obviously great gain.

Lord Balfour, while commending the principle underlying the subcommittee's suggestions for the co-ordination of research, expresses himself as averse to any form of imperial control with this object. Despite his reservation as to the supply of genius he was hopeful that much may be accomplished in the way of improvement " if we are not too ambitious."

each would seem to have been copious whenever the house could afford it. Mr. Salzman quotes some rhyming instructions, one of which is:

"Defyle not thy lips with eating much, as a pigge eating draffe;
Eate softly and drinke mannerly, take heed you do not quaffe."

It would seem, however, that our forefathers had some difficulty in providing meals containing much meat during the winter season. The system of saving fodder from the summer and late autumn was not efficient, and cattle had to be killed and cured in the autumn—at any rate, that was the case a century earlier. The dearth of fresh meat accounts for the obligation there was on the lord of the manor to keep a capacious pigeon cote. Probably he ate most of the pigeons himself, but doubtless the tenants took toll. If we come to the next century we find a considerable number of entries in Pepys's Diary of what he ate for dinner, which seems to have been a movable feast any time between noon and two o'clock; the latter hour probably was exceptional, and due to the pressure of his work and the talkative habits of committees, which would sometimes sit much longer than he thought at all necessary, but without getting very much work done. This fault is not altogether unknown at the present day.

RECENT RESEARCH IN FOOT-AND-MOUTH DISEASE.

THE epizoötic of foot-and-mouth disease which has been present in this country for the past few years appears to have reached its zenith in 1923, when over a quarter of a million animals were slaughtered, at a direct cost to the country of 2¼ million sterling in compensation alone. During 1925, according to a recent report of the Ministry of Agriculture, only twenty thousand animals were slaughtered, and the compensation amounted to just over a quarter of a million sterling. Research is still continuing both here and abroad. At home there is little advance in the state of affairs previously reported in these columns. Investigations, however, have been conducted into the plurality of viruses, and the existence of two separate types (corresponding to the A and O strains of Carré and Vallée) has been confirmed in this country. Stockman and Minett[1] have investigated seventeen strains from various outbreaks in Great Britain, and find that sixteen of these were of the O type and only one of the A type. (The terms O and A were originally given by Carré and Vallée to strains collected in the Oise (O) and in Germany (A).) It has previously been suggested[2] that man might be relatively insusceptible to one of these types, and if this hypothesis can be confirmed it would serve to explain the comparatively small number of human infections in Britain. The O type seems to produce a much milder form of disease in cattle than the A type—the incubation period is longer, the lesions are less extensive, and there may even be no clinical signs of the disease. It is significant that many of the human epidemics have occurred in Germany, and it is suggested that these may be A type infections. Most of the cases recorded from this country have been very mild, compared with the sometimes fatal Continental cases, and would probably be O type infections. It has previously been suggested that these types should be referred to as aphthous and paraphthous fever. Recently, however, Waldmann and Trautwein[3] have reported the existence of a third type in Germany, and the suggested nomenclature would seem to be insufficient without the assistence of the alphabet in a manner analogous to the typhoid fevers in man. Meanwhile the American commission on this disease has visited the Continent, and has issued an interim report.[4] In horses, especially in the United States, there exists a disease called vesicular stomatitis, which clinically resembles foot-and-mouth disease very closely. The commission found that injections of material from vesicles of this disease into guinea-pigs produced lesions almost identical with those of foot-and-mouth disease in these animals; the viruses could be distinguished by cross-immunity tests, however. The commission found also that injections of this virus into cattle produced what appeared to be foot-and-mouth disease, but there was less tendency to produce vesicles on the feet than in the classical disease, and the one virus gave no immunity against the other. Pigs appear to be equally susceptible to either virus, and the lesions, both on the mouth and the feet, are indistinguishable the one from the other. Here again there is no cross-immunity. But neither do the A and O viruses of foot-and-mouth disease give any cross-immunity. The horse shows a considerable resistance to true foot-and-mouth disease (the American commission was quite unable to infect this animal experimentally), but it is very susceptible to vesicular stomatitis, lesions developing not only on the mouth but sometimes also on the feet. This appears to be the greatest difference between the two diseases, and accordingly there seems no valid reason why vesicular stomatitis should not be considered a variety of foot-and-mouth disease. The present position seems to indicate that foot-and-mouth disease, like distemper in dogs and coryza in man, is not a single disease but a whole group of diseases with somewhat similar clinical symptoms, but producing no immunity against each other—which promises very considerably to complicate the bacteriological fight against it.

[1] *Journ. Comp. Path. and Therap.*, xxxix, p. 231.
[2] BRITISH MEDICAL JOURNAL, July 19th, 1924, p. 117.
[3] *Berl. Tier. Woch.*, xlii, p. 569.
[4] *Journ. Amer. Vet. Med. Assoc.*, lxx, p. 147.

ILLUMINATION IN PRINTING ROOMS.

THE Departmental Committee on Factory Lighting appointed by the Home Office in 1913, in its third report, after classifying a variety of processes as "fine" and "very fine," urged the importance of obtaining more precise knowledge of the conditions of illumination desirable on physiological and psychological grounds for such work. This was one of the problems submitted to the Illumination Research Committee appointed by the Department of Scientific and Industrial Research to study illumination on general lines, and the committee decided to select hand composing in letterpress printing as the first example of fine work to be studied. The collaboration of the Medical Research Council was invited, and it appointed Mr. H. C. Weston and Mr. E. K. Taylor, of the National Physical Laboratory, to assist in the inquiry, and the Joint Industrial Council for the Printing and Allied Trades nominated two representatives to the special subcommittee appointed to supervise the investigation. The observations were carried out at the printing works of Messrs. Kelly's Directories. The most striking conclusion is that all printing offices would seem to be insufficiently lighted. It appears that some of them have less than 2 foot-candles; with this insufficient illumination nearly a quarter of the possible output is lost, the number of mistakes is more than doubled, and the fatigue experienced by the compositors materially increased. Even when the illumination is as much as 7 foot-candles—a value which is thought to be higher than the present general practice—over 10 per cent. of the possible output is lost, and there is a high percentage of errors. The committee concludes that there is an optimum value of illumination for hand composing, and that it is of the order of 20 foot-candles. If the installation is well planned so as to secure approximate uniformity of illumination over the whole area of work, it may be expected that the daylight rate of output will be maintained, at any rate for the short periods for which an artificial light is required in ordinary printing offices during the year. When work has to be done continuously by artificial light, as in newspaper offices, the provision of

maintained by a group of incandescent filament lamps at the National Physical Laboratory in this country and the corresponding institutions in Paris and Washington. Perhaps the wise author will include a glossary in his work so that there will be no misinterpretation. The Illumination Research Committee of the Department of Scientific and Industrial Research has hit upon an even better method; it publishes from time to time a series of technical essays on particular pieces of work, mostly relating to specific problems in industrial illumination, such as the light distribution of certain reflectors, and the absorption of light by window glass, and it has taken the precaution to devote the first of these essays simply to terminology in order that those who read what comes afterwards may have a clear apprehension of the terms and symbols. This essay, published in a pamphlet with the title *The Terminology of Illumination and Vision*,[1] adopts, not the alphabetical order of the dictionary, which is the crudest of classifications, however convenient, but the natural order of the subject as a student would approach it, proceeding from the simple to the complex, from the general to the particular, and from the regular to the anomalous. Certainly it is helpful to the memory to come upon a certain term with its definition, not isolated among words with which it has nothing in common except that their initial letters are the same, but branching out from other terms which up to a point have the same meaning. Even the casual student in that way begins to appreciate that the terms used in ophthalmology, for example, are not erratically chosen, but hang together and are themselves a science. Take, for example, the disturbance of muscle balance in the eye, which is spoken of as "heterophoria." If the deviation is a convergence we have "esophoria," if a divergence "exophoria," if vertical "hyperphoria." In a few pages the Illumination Research Committee manages to bring into a clear narrative practically all the more common terms used in photometry and illumination on the one hand and physiological optics on the other. The latter section begins with a simple description of the structure of the eye, its dioptric mechanism, whereby images are brought to focus on the retina, the adjustment of this mechanism by accommodation, and its anomalies, which involve such terms as anisometropia, hypermetropia, and myopia. The co-ordination of the movement of the eyes brings in another set of terms, and a simple explanation is given of what is meant by the visual field and by binocular and stereoscopic vision; then come the three visual sensations—the light, the form, and the colour sensation—and the tests for each. The same plan is followed with the terms in photometry and illumination, which are even more formidable than those in ophthalmology, and are fully to be apprehended only by the mathematician.

GENERAL PARALYSIS IN PRIMITIVE RACES.

PROFESSOR FELIX PLAUT of Munich has recently given an interesting account[2] of a tour undertaken in company with the late Professor Emil Kraepelin to determine the prevalence of general paralysis among negroes and Indians in the United States, negroes in Cuba, and Indians in Mexico. During the eighty clear days which they had at their disposal the writers investigated North American negroes in the St. Elizabeth Hospital at Washington, Cuban negroes in the Mazorra Institute at Havana, North American Indians in the Asylums for the Insane at Canton, South Dakota, and Mexican Indians in the general asylum in Mexico City. Their investigations led them to conclude that during the last ten to fifteen years syphilis has been twice as frequent among the negro men and three times as frequent among negro women as in the corresponding sexes of the white race. Certain differences in the course of syphilis were noted among North American negroes, such as the rarity of extragenital chancres, peculiarities in the form and extent of the secondary eruptions, and appearances of gummata on parts of the body seldom affected in the white race, and the fact that the osseous system is involved twice as frequently as in whites. The inquiry showed, however, that the negroes in North America were as susceptible to general paralysis as the whites, and that the incidence of cerebral syphilis among negroes in asylums was relatively high. Whereas in 1922 the incidence of general paralysis among the negroes showed only a slight excess over that among the whites (11.6 per cent. as compared with 8.5 per cent.), cerebral syphilis was four times as frequent among the negroes as among the whites. General paralysis was rare among the negroes of Cuba, who, though not quite so often infected with syphilis as the North American negroes, are sufficiently often attacked to render a higher incidence of general paralysis probable unless some protective influences were at work. The nature of these influences was not ascertained. General paralysis is also decidedly rare among the North American Indians, in spite of the relatively high incidence of syphilis. Predominance of skin and bone syphilis cannot account for this, as the disease appears to be of a milder type than in the neighbouring white races. Syphilis was found to be very prevalent among Indians in Mexico City, and the frequency of general paralysis among them did not appear to differ essentially from that found in the asylums of North America and Europe.

[1] H.M. Stationery Office, 9d. net.

[2] *Paralysestudien bei Negern und Indianern: Ein Beitrag zur vergleichenden Psychiatrie.* Von Dr. Felix Plaut. Mit einem Geleitwort von Prof. Emil Kraepelin. Berlin: Julius Springer. 1926. (Sup. roy. 8vo, pp. 98; 15 figures.)

TWO MEALS A DAY.

ANDREW BOORDE, who was born in or about 1490 at Cuckfield in Sussex, began life as a monk and was afterwards nominated suffragan Bishop of Chichester, although he never seems to have discharged any episcopal duties. He finally obtained dispensation from his orders, and became a physician. Partly to improve his knowledge and partly to find out what was thought of Henry VIII, he travelled over many parts of Europe, and, like a sixteenth century Flexner, visited and inspected many universities. Some have supposed him to be a Scot because he studied at Glasgow; but he, in fact, had a very poor opinion of Scotsmen. In addition to a sort of guide-book to Europe he wrote several medical books, including one entitled *Dyetary*, in which he gave much shrewd advice. Of a man's ordinary diet he said: "Two meales a day is suffycyent for a rest man; and a laborer may eate three tymes a day; and he that doth eate ofter lyveth a beestly lyfe." Mr. Salzman, who quotes this in his *English Life in the Middle Ages* (London: Humphrey Milford), says that at the time when Boorde wrote "the two universal meals were dinner, taken about 10 or 11 in the morning, and supper, for which the usual hour was 4 o'clock. . . . Mediaeval cookery was more elaborate than is often realized. A great variety of soups, stews, pasties, fritters, jellies, and so forth were in common use, and the recipes that have survived from the fifteenth century show that many dishes were of very elaborate composition, most containing quantities of spices." As an instance of an elaborate recipe Mr. Salzman takes that for "leche lumbard," which was something in the nature of a saveloy or German sausage: "Take pork and pound it in a mortar with eggs; add sugar, salt, raisins, currants, minced dates, powdered pepper, and cloves, put it in a bladder and boil it; then cut it in slices." This was served with a sauce made of raisins, red wine, almond-milk coloured with saffron, pepper, cloves, cinnamon, and ginger. If our forefathers of the sixteenth century only had two meals a day,

NINETY-FIFTH ANNUAL MEETING
of the
British Medical Association,
EDINBURGH, 1927.

Edinburgh Castle.

THE ninety-fifth Annual Meeting of the British Medical Association will be held in Edinburgh next summer under the presidency of Sir Robert Philip, M.D., LL.D., honorary physician to the King in Scotland, who will deliver his address to the Association on the evening of Tuesday, July 19th. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the morning sessions being given up to discussions and the reading of papers, and the afternoons to demonstrations. The Annual Representative Meeting, for the transaction of medico-political business, will begin on the previous Friday, July 15th. The provisional programme for the work of the twenty-one Scientific Sections is being drawn up by an Arrangements Committee, consisting partly of Edinburgh representatives and partly of members appointed by the Council of the Association. The names of the Presidents of Sections are given in a Current Note published in this week's SUPPLEMENT; the full list of officers, together with other details of the arrangements for the Annual Meeting, will appear in later issues. On the last day of the meeting (Saturday, July 23rd) there will be excursions to places of interest in the neighbourhood. The Association last met in Edinburgh in 1898. We publish below the first of a series of articles on the past history and present activities of the Scottish metropolis and its world-renowned medical institutions.

OLD EDINBURGH AND THE BEGINNING OF THE EDINBURGH MEDICAL SCHOOL.

EDINBURGH is a town that powerfully stirs the imagination, both by its natural beauties and by reason of the tradition and romance which cluster round its streets and buildings. The Castle Rock and the surrounding hills have been the seat of human habitation and warfare since prehistoric times. Cramond and Musselburgh, on the city boundaries, show remains of occupation as Roman military posts, and the wall of Agricola, between the Firths of Forth and Clyde, which formed the northern boundary of the Roman Empire, ended some eighteen miles west of Edinburgh. In the Castle to-day are still to be found buildings to remind the visitor of Margaret, the saintly queen of Malcolm Canmore, who did much to civilize and Christianize Scotland; of David I, that "sair saint for the Croon," who founded the beautiful abbeys of Jedburgh, Kelso, Melrose, Dryburgh, Newbattle, and Holyrood, and who introduced the feudal system into Scotland; and of the troubled and romantic times of the unfortunate Mary Queen of Scots. From the Castle the historic mile leads down the High Street, past St. Giles Cathedral and John Knox's house and the old dwellings of the Earl of Moray, Lady Stair, the Earl of Huntly, and others of the ancient Scottish nobility, to Holyrood, with its palace and ruined abbey, again associated with the fortunes of Mary Queen of Scots. On the north of this old town lie Princes Street Gardens, once occupied by the Nor' Loch, which protected the city on this side, while half a mile or so from the High Street, on the south, can still be found remnants of the old city wall, which formed the buttress against "our auld inemyes of England." Immediately within the precincts of the old wall stood in the fifteenth and sixteenth centuries several religious houses, whose names are still preserved in Blackfriars Wynd, Greyfriars Churchyard, and the Pleasance, where the convent of Saint Mary of Placentia formerly stood. On the site now occupied by the University buildings, about one mile from Holyrood, stood Kirk o' Field, the house in which the unhappy Darnley was blown up in 1567 during the progress of a masque at the Palace. Among the other buildings still extant and connected with celebrated names of bygone days are Heriot's Hospital, built with funds supplied by "Jingling Geordie," the Treasurer of James I of England; Merchiston Castle, where John Napier worked out his logarithms; Lauriston Castle, the home of John Law, the floater of the Mississippi scheme; and the houses of Sir Walter Scott, Lister, John Brown, and many others who have contributed to the fame of the scientific and literary life in Edinburgh.

FIG. 1.—Convening House of Barber-Surgeons in Dickson's Close (still standing).

Edinburgh is situated on high ground overlooking the Firth of Forth, with Leith, now absorbed in the city, but until recently a separate burgh, as its seaport. Some nine miles to the north-west, the Firth of Forth is crossed by the Forth Bridge, near which lies Rosyth Dockyard and the naval anchorage, a place of great activity during the

higher values of illumination is essential if the efficiency of a night shift is to approach that of a day shift. If work is done in artificial light only for a few hours a day, no evidence was found that any undue ocular fatigue is likely to result, providing the illumination is uniform and of the order of at least 10 foot-candles.

THE GENEVA OPIUM CONVENTION.

THE Geneva Opium Convention of February, 1925, from which such beneficial results were anticipated by those who framed it, has not yet come into force. It cannot do so until it has been ratified by ten of the signatory Powers, including seven of the principal States in respect of which the Central Board to supervise its operation is to be formed. The Secretary of State for Foreign Affairs recently made in the House of Commons the unsatisfactory announcement that only the British Empire (excluding Canada and the Irish Free State), the Sudan, and Portugal had deposited ratifications. It was claimed by M. Zahle, the president of the Second Geneva Conference, that the convention signed in February, 1925, had "provided the mechanism for its own realization," and that it had initiated "a movement which will accelerate from day to day and from month to month," and that it "had greatly strengthened the Hague Convention of thirteen years ago." This sanguine anticipation has not so far been realized. Reports of illicit traffic in opium, morphine, and cocaine abound. The immense excess of production over any conceivable legitimate use is notorious. The extinction of the export trade in Indian opium, mostly used for smoking, will not be completed for ten years. Critics of the Geneva conferences freely declared that "the agreement of the First Conference represents no progress worth discussing, and the new drugs convention adopted by the Second Congress is a thing of printed paper with the odds heavily against it ever being anything else." It is perhaps some consolation to learn from Sir Austen Chamberlain's recent reply that "The Hague Convention of 1912 continues in operation as between the States parties to it." It will be remembered that the American delegation at Geneva regarded the convention of 1925 as in some respects a less satisfactory instrument than that of 1912, and complained that some of the obligations envisaged by the latter had not been carried out. More recently the Italian representative at the League of Nations declared that the unratified convention of 1925 was in some respects a step backwards from the Hague Convention of 1912. If the earlier convention was lacking in the provision of adequate machinery to attain its objects, it was largely because the British Government instructed its delegates to refuse to discuss "the advisability of an international commission to be entrusted with the carrying out of any international agreement concluded." The present position is highly unsatisfactory, and can only be regarded with equanimity by those who profit by the traffic in dangerous drugs, or who are loath to restrict their employment exclusively to medical and legitimate uses.

LOCUSTS IN MEXICO.

GREAT BRITAIN, fortunately, is not infested by locusts, but this plague, which we are accustomed to associate with the name of Moses, is by no means uncommon in many countries at the present day; and those who have witnessed smiling orchards and green fields stripped of every vestige of their vegetation in a single night, and have seen the devastating hordes advancing in solid masses to the limits of the horizon, will realize the importance of investigations which throw light on the life-history and habits of these pests, and indicate the direction to be taken in formulating measures for their destruction. We welcome, therefore, a valuable addition to our knowledge of the subject that comes from Mexico in the form of a report by a scientific committee appointed to investigate a plague of locusts which invaded the State of Vera Cruz in 1923 and continued in successive waves in 1924. Oddly enough, the committee was appointed, not because of the destruction caused to the agricultural interests of the State, but on account of complaints made to the health authorities of the pollution of water supplies by the dead bodies of the locusts. The committee carried out its investigations in the autumn of 1924, and the report now published bears the names of its three members, Dr. Carlos Hoffmann, professor of zoology in the National University, Dr. Dampf, professor of entomology in the National School of Agriculture, and Señor Gerardo Varela, assistant in the bacteriological department of the Mexican Institute of Hygiene. Their report contains five chapters. The first, by Professor Hoffmann, gives the history and progress of the plague and the situation at the beginning of November, 1924, when the report was submitted. The second chapter, by Dr. Dampf, is a contribution to the morphology and bionomics of the *Schistocerca paranensis* Burm., the locust which caused the plague. The third chapter, by all three members of the committee, contains observations on the parasites that are found on and attack the locusts; the fourth chapter, by Dr. Dampf and Señor Varela, is a study of the carcasses of the locusts; and the final chapter, by Professor Hoffmann and Señor Varela, investigates the nature of the pollution of water supplies by the dead bodies and their influence in spreading disease. The report is extremely well and clearly written. It is illustrated by excellent photographic reproductions and drawings, and gives a short bibliography at the end of each chapter. It embodies a scientific investigation that is worthy of study by all who are interested in the bionomics of locusts or in the prevention of the appalling devastation caused by them from time to time in so many quarters of the globe.

THE ASSOCIATION IN 1926.

THE middle pages of the SUPPLEMENT this week are addressed to medical practitioners who are not already members of the British Medical Association, and in particular to those who have lately joined the ranks of the profession. A brief account is given of the chief aims of the Association, its work and organization, and of the privileges and responsibilities of membership. The remarkable growth of the Association in recent times is brought out graphically in a chart showing the number of members year by year since 1876. In the past twelve months there has been a further gain of nearly 2,000, the total on November 25th, 1926, being 32,330. The numerical strength of a professional body is not, of course, the only test of its vitality, but a net increase of more than 12,000 since the war speaks for itself. During the same period the number of names in the *Medical Register* has increased by about 7,000.

SIR THOMAS LEGGE, M.D., who has been H.M. Medical Inspector of Factories since 1898, states in a letter to the *Times* that he has resigned that appointment because he cannot recede from the position he took up at Geneva in 1921, when, as one of the delegates of the British Government, he voted for the draft convention prohibiting the use of white lead for internal painting of buildings. As recorded in our Parliamentary column last week (p. 1025), the Lead Paint (Protection against Poisoning) Bill reached its final stage in Parliament on November 18th. In it the Government adopted the policy of action by regulations for the prevention of lead poisoning among house painters, instead of the prohibition of lead painting for interiors recommended by the International Labour Conference at Geneva five years ago.

who operated on the Regent Earl of Morton for strangulated hernia (1572), and Gilbert Primrose, chirurgeon to James VI and Deacon of the Craft of Chirurgeons (1583), under whom this guild was granted pre-eminence among the trade guilds of Edinburgh. An apprentice of the last in 1587 was John Naysmyth, later chief surgeon to the Scots Guards of the King of France. The social status and professional skill of these sixteenth century master surgeons of Edinburgh, relative to other callings and to the general knowledge of the time, was at least as high as that of surgeons at the present day. Several of them possessed considerable heritable property in the city or estates in its vicinity. Their number was not large, as may be gathered from the fact that in the year 1648 they totalled only ten.

While the demonstration of anatomy by the barber-surgeons on the bodies of executed criminals probably continued year by year, a definite teacher of anatomy is not mentioned until 1645. The master surgeons had presumably given yearly demonstrations in rotation conformably to the words of the original charter "ilk ane to instruct utheris." In this year James Borthwick, a burgess of Edinburgh, having duly passed his examination, was admitted as a master surgeon for the special purpose of "desceting of anatomie for the farder instruction of prentissis and servandis." Borthwick had served abroad through the Thirty Years War and been chirurgeon-general to the Auxiliary Scots Army in England during the civil war. It had been the custom till now to hold the meetings of the craft in the house of the deacon for the time being, and one can imagine that the anatomical instruction must have caused some awkwardness in his domestic arrangements. In 1647 David Kennedy and James Borthwick reported that they had taken as a place of meeting "three rowmes of ane tenement of land in Diksone Close, for payment of fourtie poundis zeirlie." This tenement in a derelict condition still stands near the end of Dickson's Close. In 1659 the Incorporation of Surgeons and Barbers had become so important that it was decided to build a "conveening house" on a piece of ground in the south-east angle of the city wall, presented to them by the town council in 1655. Each member subscribed £100 for that purpose. The grant of further sources of anatomical material by the town council made it possible by Michaelmas, 1697, to build, repair, and have in readiness an anatomical theatre for public dissections. From December, 1697, therefore, the teaching of anatomy in Edinburgh became systematic. Archibald Pitcairne, Alexander Monteath, and others gave combined anatomical demonstrations, and we find Pitcairne, who had for two years been a professor of medicine in Leyden, writing in 1694 to a friend in London that he proposed "to make better improvements in anatomy than have been made in Leyden these thirty years." The Tounis College for the study of the humanities, established by the town council in 1582, had not yet made any provisions for medical teaching. In 1676, however, the town council appointed James Sutherland professor of botany, and three professors of medicine—Dr. A. Pitcairne, Sir Robert Sibbald, and Dr. James Halket—were added to the College in 1685. These appointments appear to have been mainly titular, and there is no evidence that any of the three gave a systematic course in medicine.

FIG. 3.—Archibald Pitcairne.

The general practitioner of the seventeenth century in Scotland, as in England, was a surgeon apothecary, professing to heal wounds and cure diseases, making and selling drugs, operating with instruments often made by the local blacksmith and much inferior to the fine steel instruments of the French surgeons. He bound himself for an apprenticeship of three years, and received instruction from the master whom he helped in practice, not being permitted to attend any lectures for the first two years; and probably the majority, unless they lived in one of the towns, never attended any lectures, and stood a very perfunctory examination before they were licensed to practise. In seventeenth century Edinburgh there were, however, several skilled physicians who had obtained diplomas at French or Dutch universities. Among these were Sir Robert Sibbald, Sir Andrew Balfour, Sir Archibald Stevenson, Dr. Archibald Pitcairne, and Sir Thomas Burnet, the brother of Bishop Gilbert Burnet, celebrated for his share in the revolt against James II, and for bringing over William of Orange. This group of men decided on the foundation of medical teaching on a better basis than hitherto at Edinburgh. Among their activities was the founding of a College of Physicians, which finally obtained a charter from Charles II in 1681. By this College an Edinburgh Pharmacopoeia was issued in 1699. This compares favourably, in the relative absence of disgusting remedies, with the current London edition of the *Pharmacopoeia*, which had been first issued by the London College in 1618. Another of their resolves was to found a complete medical school in Edinburgh. This began as a development of the anatomical teaching already mentioned; in 1702 a course of anatomical demonstrations was carried out by several members of the Incorporation of Surgeons. This anatomical course consisted of eight practical demonstrations, as follows:

First day: A general discourse on anatomy, and the common teguments and muscles of the abdomen, by James Hamilton, the Deacon.
Second day: The peritoneum, omentum, stomach, intestines, mesentery, and pancreas, by John Baillie.
Third day: The liver, spleen, kidneys, ureters, bladder, and parts of generation, by Alexander Monteath.
Fourth day: The brain and its membranes, with a discourse of the animal spirits, by David Fyfe.
Fifth day: The muscles of the extremities, by Hugh Paterson.
Sixth day: The skeleton in general, with the head, by Robert Clerk.
Seventh day: The articulations and the rest of the skeleton, by James Auchinleck.
Eighth day: The epilogue, by Dr. Pitcairne.

Later the course was extended to ten days, and about the year 1705 arrangements were made with one man to take over the conduct of these lectures, and Robert Eliot was chosen as "public dissector," receiving from the town council a salary of £15 per annum, "as an encouragement to young men to study anatomy instead of travelling to foreign universities, which was attended by expenses and perils to youth." Eliot was succeeded by John M'Gill and Adam Drummond, who in 1719 resigned in favour of Alexander Monro, a young man who had a special knowledge of anatomy, having studied under Cheselden in London. On March 14th, 1722, Monro's appointment was confirmed by the town council for life. Monro lectured in the Hall of the Surgeons from 1719 till 1725, when, following upon a public riot directed against body-snatching, he removed his preparations for greater security within the walls of the University, as the Tounis College had come by this time to be called. As early as 1711 there had been great complaints of graves in Edinburgh being rifled,

FIG. 2.—The 1697 Surgeons Hall, with old City Wall in background. (Hall still standing with part of wall.)

war. In the Firth lie the islands of Inchcolm, with an old abbey and the monastic cell of one of the early Christian missionaries to Scotland, and further to the east the Bass Rock, with an ancient fortress. To the south of the city the rich agricultural district of the Lothians stretches to the Moorfoot and Lammermoor Hills. In the middle of the plain stands up Traprain Law, a steep rounded hill once crowned by a primitive hill-fort, in which some years ago was unearthed a great hoard of silver vessels, the plunder of Roman towns in Gaul. South of the hills lies the fair valley of the Tweed, celebrated in border minstrelsy and legend. It is a commentary on the change wrought by time that at the present day one can lunch at Edinburgh and comfortably take tea at Otterburn, where, in 1388, took place between the Scots and English what Froissart calls "the hardest and most obstinate battle that was ever fought," and where the dying Douglas said:

> "But I have dreamt a dreary dream,
> Beyond the Isle of Skye,
> I saw a dead man win a fight,
> And I think that man was I."

The road along Tweedside by Peebles and the abbeys of Melrose, Dryburgh, and Kelso, ruined during the incursions of Somerset in the time of Henry VIII, is one of the most beautiful in Scotland, and an easy afternoon's motor run from Edinburgh.

The union of the crowns under James VI of Scotland and I of England in 1603 was a great blessing to both countries by putting a stop to the constant warfare on the border, and since that date the peaceful penetration to London has been the aim of all ambitious Scots. In mediaeval times Scotland was a poor country, although intercourse and alliance with France brought to the northern country many intellectual advantages which have left traces on Scottish architecture, habits, and language. The desire for education was satisfied by many monastic settlements, and Haddington, some seventeen miles east of Edinburgh, was the seat of a school and abbey church known far and wide as "The Lamp of Lothian." Here William Dunbar, John Knox, George Buchanan, and Sir David Lindsay were educated. St. Andrews, in Fifeshire, had schools which were noted in the twelfth century, and a university founded in 1411. The University of Edinburgh, a child of the Reformation, was founded as the "Tounis College" by the town council in 1582. In regard to medicine, in Scotland as in other countries from early times churchmen, who had obtained a knowledge of medicine during travels abroad, were found in the religious houses. Such a one was Michael Scot in the twelfth century, who returned to Scotland in his declining years to be buried in Melrose Abbey,

> "A Wizard of such dreaded fame,
> That when in Salamanca's cave
> Him listed his magic wand to wave,
> The bells would ring in Notre Dame!"

There also existed in the highlands a peculiar type of hereditary doctor, especially in the family of Beaton or Macbeth, attached to some of the great families, and handing down their medical traditions from father to son through many generations. In the towns, and notably in Edinburgh, there were guilds of barber-surgeons, as of other trades, and in the fifteenth century the brethren of the Guild of Surgeons and Barbers maintained an altar, where daily services were held, in the Kirk of St. Giles, under the patronage of St. Mungo. In the year 1505 this guild received a charter of incorporation from the town council, confirmed the next year by King James IV. Among the conditions stipulated in this charter was a provision that every man before he became a freeman and master of the craft should submit to an examination in the following points, "thatt he knaw anotomea, nature and complexioun of every member In manis bodie And in lykewayes he knaw all the vaynis of the samyn thatt he may mak flewbothomea in dew tyme And als that he knaw in quhilk member the signe hes domination for the time." Further, no master was to take an apprentice to practise the craft of surgery unless he could both write and read—a sign of unusual erudition in those days. A noteworthy concession by the town council, as indicating the beginning of public teaching, is the grant to the guild "that we may have anis in the yeir ane condampnit man efter he be deid to mak anatomea of quhairthrow we may haif experience Ilk ane to instruct utheris." Doubtless the yearly anatomical demonstration was carried out in the same manner as that by which Mondino had lectured at Bologna two centuries earlier, and seeing there was much intercourse in the sixteenth century between Scotland and the Continent, probably Mondino's little textbook was used, or that of his contemporary, Henri de Mondeville of Paris and Montpellier. Although public dissections had been carried out in most of the Continental universities in the fourteenth and fifteenth centuries (Venice from 1308), this was the first enactment on the subject in Britain, preceding even the law of Henry VIII in 1540, by which four bodies of executed criminals were granted to the barber-surgeons of London. During the next half-century Edinburgh suffered several disasters, commencing with the battle of Flodden, and continued by the destruction wrought in the English invasions under Somerset. In 1558, indeed, the Incorporation of Surgeons supplied twenty-five of their number, including apprentices, to a force of Scots and French operating against England.

While minor surgery was left in the hands of the barbers and their apprentices, there were in the sixteenth century at Edinburgh several distinguished surgeons who had been trained abroad, especially in the French wars. Among these were Anthony Brisset, who treated Queen Mary of Guise (1542), Gilbert Skene, who published at Edinburgh a treatise on the plague (1568), John Chisholm,

Physically and Mentally Defective Children.

The provision for the education of defective children incapable of taking advantage of the teaching of the ordinary schools is one of the most onerous tasks that the local education authorities have to undertake. Places are now provided for 45,000 children. Over 16,000 of these are for mentally defectives. Next comes the provision for crippled children, closely followed by the open-air schools for the sickly and schools for the blind and deaf. There has been an increase under nearly all these headings, but this is not due to any increase in the actual number of defective children, but to improved arrangements for the ascertainment of existing defectives. Generally speaking, there is sufficient provision for all children totally blind or deaf, but a considerable increase is needed in the provision of special classes for children who are partially blind or deaf. There is only about half the necessary accommodation for mental defectives, there is not enough for the epileptic, and there is pressing need for further provision for children in various stages of crippling, whether due to tuberculosis, paralysis, heart disease, or other cause.

Open-air Schools.

Reports from areas where open-air schools have been established show that they are taking a useful place in our educational system; the children benefit both physically and mentally from attendance thereat. Dr. Wyche of Nottingham says:

> It is noteworthy that widespread outbreaks of "cold," influenza, and other infectious diseases, which not uncommonly play havoc in the ordinary schools, are never able to get a firm grip on the delicate children in the open-air schools; odd cases occur, but that is all; there is little or no spread of infection in sunshine and open air.

The returns of the results achieved are held to be useful as far as they go, but it is thought desirable to obtain further evidence as to the permanency or otherwise of the benefit received. The cost of the schools is high—£30 a year for each child in a day open-air school, as against £12 in an ordinary elementary school. The high cost is due to small classes, more teachers, three meals a day, and equipment for rest and for shower baths. Certain school medical officers in areas where such schools have been in existence for some years were invited to furnish reports of the after-effects. Returns were received relating to 231 children who had been for three or more years in such school. Their state three or more years after leaving was noted as follows: Very satisfactory 116, satisfactory 55, fair 27, unsatisfactory 21, still under treatment 10, dead 2; of 101 returned to the ordinary schools 81 are reported to attend regularly. Dr. Thomas notes that in his London district the after-history of the boys is more satisfactory than that of the girls, and suggests that the reason is that the home life and occupational activity of the girls are more confined than in the case of the boys. It is added that there are two chief influences that tend to depress the health and undo the good of the open-air school: first, unsatisfactory home conditions, and secondly, unsuitable employment. Attempts are being made to provide more suitable occupations, but the difficulty is to find work that parents think holds out good prospects, and especially of a type they know themselves. Dr. Auden of Birmingham reports that the gain derived is not only to health and physique, but is educational also. There would appear to be a definite financial advantage to the community, inasmuch as these children are enabled to become regular wage-earners when their school days are over.

Juvenile Employment.

The battle for the school child in relation to employment in industry has been fought and on the whole won through legislation that culminated in the Education Act of 1921, Part viii. No child may now be employed for gain under the age of 12 years. A child between 12 and 14 may be employed after school hours till not later than 8 p.m. The child is examined by the school doctor as to physical fitness before being permitted to take up the proposed employment, and in some areas close vigilance is exercised on the children in employment. Generally speaking, the opinion of the school doctors appears to be that under the present restrictions industrial employment to children over 12 years out of school hours is not detrimental. Much of the work is out of doors, and the effect, both direct and indirect, is advantageous—for example, the child gets better food and clothing. But there are references to the innumerable cases where girls are used as drudges in the home, with disastrous results, both to health and mentality. This is a problem the solution of which lies in the development of an enlightened public opinion.

Costs.

The cost of the school medical service for the year was £1,300,347; this is about 2¼ per cent. of the cost of public elementary education, which is just over 57 millions. So that of every £100 spent by local education authorities £2 5s. 2d. goes to the medical services—not a high premium of insurance. Sir George Newman states that he has

> "no doubt whatever that the nation is getting value for money. A very large number of children suffering from defects of various kinds are having those defects remedied and are thereby enabled to profit more fully from the education provided for them at the public cost. These children are the workers and citizens of the future, and improved physical condition now means increased efficiency and capacity in later years. These are positive gains, and to them must be added the large saving of expenditure which would otherwise have been incurred in various ways had these defects and this physical unfitness been allowed to remain."

Infants.

One significant fact that has emerged through systematic school medical inspection is the serious degree of physical defect in the children on their first admission to school. This the report places in the forefront of the medical problems of the elementary school. Observations have been taken of the state of entrants over a number of years. Broadly speaking, there is not much evidence of substantial improvement—nothing like the manifest improvement of the children in school. This is due to the fact that for the most part many of them had never had medical attention or even examination until they were brought to the school for the first time. There is, however, one criterion worthy of note—namely, general physique as measured by height and weight. Dr. Wheatley of Shropshire reports an improvement in weight since the war in both sexes, of entrants and leavers, in town and country schools. Dr. Herdman of Bedfordshire says that children born in 1920 and examined in 1925 averaged nearly one inch taller and one pound heavier than the average pre-war child of the same age. Dr. Thomas of Acton gives similar returns, and adds that the full returns show that the increase in height and weight is more obvious among the children coming from the schools in the poorer districts. Malnutrition, large tonsils and adenoids, bad teeth, deformities, and squint are common findings. The medical observations are held to represent a large measure of failure wisely to provide nurture for the early years of infancy. Much of the failure is not due to neglect or want of effort. It may be due to overanxiety for the welfare of the child showing itself in overfeeding, overclothing, and overcoddling generally. In either case it is want of knowledge in the grand art of child nurture. The cure for this is thought to lie in a closer association between the infant welfare work and the school medical service, but the private medical practitioner and the voluntary hospital are also rendering most valuable assistance.

It is suggested that it would be of value if each school medical officer in his next yearly report reviewed the health of the entrant child in his area and indicated any special problem with which he is faced. Information and observations bearing on the physical condition of the entrant in relation to the care bestowed during pre-school years, together with an indication of the results already attained, might prove invaluable in affording guidance in regard to different types of measures adopted or required. With a view to elucidating the interpretation of cause and effect of early disease in the young child Sir George Newman is obtaining the aid of individual medical officers in regard to the more detailed examination and following up, personal and environmental, of certain children immediately on admission to school, with the object of ascertaining, in regard to physical defects present, their relative frequency and importance, their causation, their subsequent history, and the measures to be taken to prevent their occurrence.

(*To be continued.*)

and the Incorporation of Surgeons had felt themselves called upon to forward to the magistrates a memorial in which they denounced this as "a scandalous report most maliciously spread about the town," and entreated the magistrates to exert their utmost power for the "discovery of such atrocious and wicked crimes." The whole memorial, however, sounds rather exculpatory than sincere, and the practice probably continued, though with greater precautions. After the trouble of 1725 the Incorporation promised a reward of "five pounds stg., for discovering such as have given just ground for this report, whether they be Chirurgeons' apprentices or others personating them in their rambles or using this cover for executing their other villanous designs." There are, however, records which give some colour to these reports: for example, in 1724, after a woman had been executed, there ensued a fight between her friends and some surgeon apprentices for possession of the body. In the middle of the fracas the supposed corpse came to life, and lived for many years with the popular appellation of "half hangit Maggie Dickson." It was not till a century later that the report received dreadful confirmation in the revelations at the trial of Burke and Hare.

Monro (*primus*), when appointed professor of anatomy, immediately introduced an extended course of instruction lasting from October to May, and including the history of anatomy, osteology, demonstrations on the soft parts and organs of the body, the dissection of various animals, the diseases for which chirurgical operations were commonly undertaken, and general lectures on physiology. This comprehensive course was continued every winter for nearly forty years, a period during which the number of students attracted to Edinburgh yearly increased. In 1720 the number attending the anatomy class had been 57, and by 1760 the annual number had increased to nearly 200.

Between these dates and shortly after the final appointment of Alexander Monro as permanent professor of anatomy, the town council decided, on the recommendation of the prominent medical men in Edinburgh, to appoint other professors, so that a complete medical course might be formed at Edinburgh. Dr. Crawford had already been appointed professor of chemistry in 1713, owing to the importance which this subject had attained in the hands of Sylvius and others on the Continent, and the final step in the institution of the school was made in 1726 by the appointment of Andrew St. Clair and John Rutherford as professors of medicine and institutes of medicine, Andrew Plummer and John Innes as professors of chemistry, and Joseph Gibson as professor of midwifery. The bicentenary of this foundation of the Medical Faculty at Edinburgh University was celebrated in June, 1926, and a full account appeared in the BRITISH MEDICAL JOURNAL of June 19th, 1926.

THE HEALTH OF THE SCHOOL CHILD.

IN presenting his annual report as the chief medical officer of the Board of Education for the year 1925,[1] Sir George Newman states that in all new public services, but especially in those of which the cost tends to increase from year to year, it is essential from time to time to examine the position and balance the cost against the benefit obtained. This he does for the school medical service for the year in question, making comparisons with previous years.

The duties of the school medical service fall under three headings: inspection for the discovery of defects and disease; curative measures; and preventive measures. For these purposes there are doctors, dentists, nurses, and clerks, with premises and equipment. The work of inspection includes the routine medical examination of three age groups, or one-third of the children every year; examination of special cases outside these age groups, and the following up and re-examination of those suffering from defects. The ostensible object of the work is to fit the child there and then to receive and benefit from the education provided for it by the State. But the crucial test of the service is not the cure year by year of so many children suffering from ill health or defects of physique. The service is educational, and that is one reason why it falls within the duty of the local education authority.

The Act of 1907 did not require that only sick children should be selected for inspection and treatment, but laid down the great principle that every child, sick or well, should come periodically into the doctor's hands, in order that this process of health education should be available for all. Education in health involves the organization of the prevention of infection at school. It is concerned with the nutrition of the child, with games, with school work, rest, cleanliness, habits of life, with drains, light, warmth, and air. It seeks to get a clean body for the child, but, better still, to teach parent and child to keep the body clean. There are some 5,000,000 children on the rolls of the elementary schools in England and Wales. Last year 2,619,350 were examined—more than the half of all, and nearly 200,000 more than the previous year. The number found to require treatment apart from uncleanliness and dental defects was nearly half a million, or 23.8 per cent. of all those inspected. Of the defects requiring treatment (excluding the two named) those of vision head the list, closely followed by enlarged tonsils and adenoids and other throat affections. Deformities account for a tithe, and tuberculous lung and local affections for still fewer.

Much of the success which has attended this work is due to the part taken by voluntary workers through the teachers and care committees. The influence the teachers can exert, and do in fact exert, on children and parents is unequalled; the success of many treatment schemes depends largely upon them. In London alone there are 330 school care committees, with 5,700 voluntary workers who give up their time with enthusiasm to the care of school children. They follow up individual children, secure regular attendance at the treatment centres, and see that the orders of the doctors are carried out in the homes.

Last year at least 80 per cent. of the children suffering from defective vision obtained proper treatment. Enlarged tonsils and adenoids required operation in 134,880 children, and 45 per cent. received treatment by operation—an increase on last year. Of the total roll of children 2,038,988, or two-fifths, were subjected to dental inspection, and two-thirds of them needed treatment; the number actually treated was 768,146, or 55.5 per cent. of those examined and found in need of treatment. School nurses made thirteen million inspections of children in the schools in regard to cleanliness—that is, three examinations for each child on the rolls. Those found to be unclean numbered 800,000, or 6.5 per cent.—the lowest recorded figure. Last year it was 1 per cent. higher. A sixth of these were cleaned under arrangements with local authorities, most of these being in London.

In secondary schools the incidence of defects of vision is somewhat higher than in elementary schools; defects of ear, nose, and throat are noticeably fewer; deformities are higher, but most are minor degrees of lateral curvature and flat-foot, not recorded in elementary school inspections.

The Teaching of Hygiene.

There is gratifying evidence that the majority of the training colleges for teachers now realize that the study of hygiene is best approached through a general scientific foundation which includes biology, chemistry, and physics. The whole theory of hygiene is founded on these. The study of animal life enables students to obtain a knowledge of structure and action of the body which should be part of the mental equipment of every man and woman. In one modern training college last year 79 per cent. of the students took such a course of study. In addition to internal lectures and practical work, external lecturers gave accounts of social activities, and visits were made to special schools, clinics, model dairies, crèches, and other centres of welfare work. In the schools also there is evidence that more teaching is given in hygiene. Some school medical officers, notably Dr. Bullough of Essex and Dr. Savage of Somerset, report that definite instructions have been given for this teaching on the lines issued to all head teachers. Special lectures have been given by Red Cross and voluntary aid societies, particularly in connexion with women's institutes, and to officers of girl guides.

[1] *The Health of the School Child.* Annual Report of the Chief Medical Officer of the Board of Education for the year 1925. H.M. Stationery Office, or through any bookseller. 1926. Price 1s. 6d. net.

THE NEED FOR THE USE OF DOGS IN PHYSIOLOGICAL AND THERAPEUTIC EXPERIMENTS.

At one of its recent meetings the Science Committee of the British Medical Association considered and approved the following Memorandum, setting out briefly reasons why it is essential that dogs should be used for certain classes of physiological, pathological, and therapeutic experiments. The publication of the Memorandum at this time may be helpful to members of the Association, who, owing to the recent incident in connexion with the Physiological Institute of University College, may have present occasion to consider the subject and possibly to advise members of the lay public upon it.

MEMORANDUM BY THE SCIENCE COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

The modern science of physiology started only in the second half of the last century. The early workers devoted themselves to the establishment of the general principles of physiology. They did not know what the practical therapeutic results of their work would be, but they knew that advance in therapeutics could come only as a result of increase of knowledge of the functions of the body.

Claude Bernard in 1877 said, regarding the practical therapeutical value of his work on the function of the liver in relation to sugar metabolism and diabetes: "Sans doute, nos mains sont vides aujourd'hui, mais notre bouche est peut-être pleine de légitimes promesses pour l'avenir." His work established the fundamental facts regarding the manner in which the transport of sugar in the body was affected. It had no immediate practical therapeutic value, but it formed the foundation for all future work on the subject; after forty-four years Claude Bernard's prophecy was fulfilled, and the invaluable remedy insulin was discovered by Banting.

To-day we have a knowledge of the fundamental processes of many physiological functions, thanks to the pioneer workers of the past. The present century has already reaped a brilliant harvest of practical therapeutic results from researches conducted during last century from a purely theoretical interest.

Insulin is a striking example of long years of research being finally crowned with a brilliant success of the highest therapeutic importance. Numerous other examples of a less striking nature could be mentioned. The knowledge of the importance of vitamins in nutrition was the result of academic work carried out at the beginning of the century, and now it promises to be of the most fundamental importance in the prevention of disease amongst urban populations.

A great many problems which at present appear of purely abstract interest are still awaiting solution, and it is as necessary as ever, if the foundations of therapeutic science are to be strengthened and enlarged, that these should be solved. Nevertheless, the knowledge which we already possess is sufficient to permit animal experiments to be made on definite problems connected directly with the healing art. That is, it is intended to utilize our knowledge regarding general physiological and pathological laws to improve the treatment of disease.

For this detailed work it is essential to use animals as nearly allied to man in their metabolism as possible, and the only alternative to this is to make experiments on man himself. The latter is a last resort, but it is unavoidable in diseases which are not transmissible to animals, as in dengue fever; in this instance 64 volunteers were inoculated with dengue from mosquitos (*Journ. Amer. Med. Assoc.*, 1926, p. 418). Similar experiments have been made in respect to malaria and yellow fever, not without risk to life. Furthermore, when it is desired to make experiments to determine the value of a specific therapeutic method it is essential that they be made on a large number of experimental animals, with many controls. This is necessary to avoid the results being vitiated by individual variation.

These reasons make the use of dogs necessary in experiments, because no other suitable animals are available. Healthy monkeys in large quantities cannot be obtained in this country. In herbivorous animals, such as sheep and goats, the physiological functions of the body are too dissimilar from those of man. The diet and metabolism of the dog are almost unique in their similarity to those of man. For example, a cat cannot be fed on a diet of biscuits or a rabbit on one of meat, whilst a dog can be given either, or an intermediate diet. Experiments on dogs may therefore throw light on human conditions—for example, with regard to digestion and urinary secretions—which would not be valid in any other available animal. Questions of mere size often preclude the use of cats. Speaking generally, the more experiments are directed to obtain results of immediate therapeutic importance, the more are experimenters forced to use dogs. This is seen very clearly if the recent work which has led to results of immediate therapeutic value is considered.

Insulin.

The fundamental work was all done on dogs by Banting and Best.

Heart.

All the recent advances in knowledge concerning the mode in which functional disorders of the heart arise was done on dogs. Our knowledge of the functions of the *spleen* and the mechanism of the secretion and absorption of the *cerebro-spinal fluid* is also due to experiments on dogs.

Parathyroid Glands.

The disease of infantile tetany has long remained a mystery, but it has been known to be associated with certain minute glands, the size of a pea, embedded in the thyroid gland. Collip has now shown by experiments on dogs that these glands have a most important action in controlling the calcium content of the blood. He has obtained an extract which has been used with therapeutic success in infantile tetany. It is possible that this extract will be found of the greatest value in the treatment of many forms of septic troubles—for example, wounds and ulcers that refuse to heal.

Rickets.

This disease used to be known on the Continent as the "English disease." It has long been a dreadful scourge in the children of the large cities of England and Scotland. At last its causation is known, and it is now recognized that it can be cured either by the administration of cod-liver oil or by exposure to sunlight. Of these two cod-liver oil is the more important, because one can buy cod-liver oil but one cannot buy sunlight—at least not in Glasgow. The fundamental work on the relation of cod-liver oil to rickets was done on puppies, because in them it is possible to induce rickets. The work on light was done chiefly on children.

Dentition.

Decayed teeth are still one of the chief causes of ill health in this country. The recruiting figures bear eloquent testimony to this fact, while the cost to the country of dental clinics is not inconsiderable. Mrs. Mellanby's work on puppies showed that a slight deficiency in the fat-soluble antirickets vitamin is a potent cause in favouring teeth decay. This work could not have been done on any other animal, and as a result of it we have a method by which the dentition of young children may be greatly improved.

Liver and Bile.

Liver diseases are one of the most important classes of disease in this country. Our knowledge of the functions of the liver, which is by far the largest and most important gland in the body, is absurdly deficient. In the case of jaundice it was not even known if this condition was always due to liver disease or whether it might not also be due to blood disease. Prolonged experiments on dogs by Mann in America have shown that jaundice can be produced not only by liver disease but also by certain diseases of the blood. This is the first step towards the discovery of the causation of jaundice, and hence to the discovery of the means for its prevention.

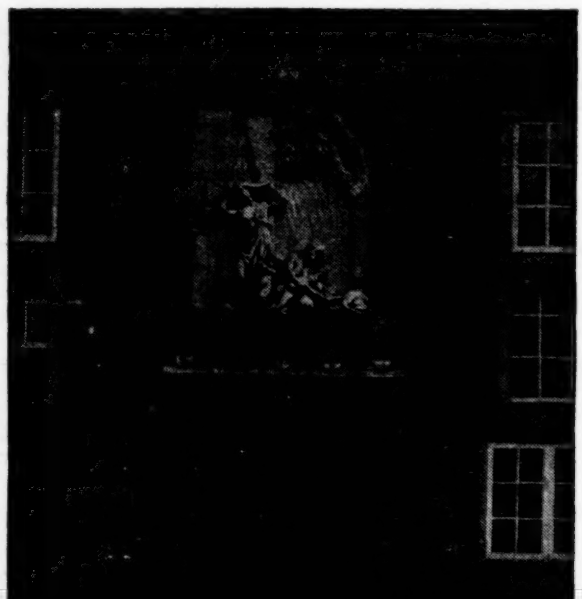
The liver excretes bile in quantity only less in daily amount than that of the urine. But whereas the urine is discharged into the open, the bile passes into the intestine, where it disappears as such, partly mingling and discharged with the faeces, partly reabsorbed into the circulation.

Nova et Vetera.

THE MEDICAL ART CALENDAR.

FOR some years past we have noticed briefly at this season the *Medical Art Calendars* published by Mr. J. Philip Kruseman at the Hague. A copy of the ninth annual issue of this calendar, for the year 1927, has now reached us. It is quite up to the standard of its predecessors, both in the choice of pictures and in the skill and taste with which they are reproduced. In selecting his material Mr. Kruseman has been assisted by a small advisory committee of three Dutch medical men and a dental surgeon; while on the historical and artistic side he has again had the help of the eminent art critic Dr. Hofstede De Groot.

Among the artists of whose work excellent examples are presented this year are Jan Havicksz Steen and Pieter Brueghel the elder, and the front cover reproduces on a larger scale the better of Steen's two pictures of a doctor visiting a lovesick young woman with chlorosis. Many other Dutch painters of the sixteenth and seventeenth centuries are represented, together with a few Flemish artists of the same period. Oil paintings predominate, but several reproductions of old engravings appear; for instance, the frontispiece of the *Fabrica* of Vesalius by Nicolaas Fontanus; one of a set of engravings illustrating the five senses, by David Teniers the younger; and a portrait of Carolus Clusius, professor of botany in the University of Leyden at the end of the sixteenth century. There is also an early Italian woodcut of the martyrdom of St. Apolonia, the patron saint of dentists, and a modern steel engraving after Bisschop's picture showing Rembrandt before the door of the anatomical theatre at Amsterdam, where he was making studies of his friend Dr. Tulp and his pupils for "The Lesson in Anatomy."



The Old Pest-house, Leyden.

Most of the pictures are intimate character groups having a medical interest, direct or indirect, and doctors and dentists and their patients again form the staple of the collection. The store of Dutch pictures dealing with medical incidents seems almost inexhaustible, and it is interesting, year by year, to observe how different artists at different periods have handled the same kind of subject. Thus in the present calendar we see the village surgeon pulling off a plaster from the arm of his wincing rustic patient, vividly depicted by Adriaen Brouwer (1606-38), and can contrast it with Lucas Van Leyden's drawing of an operation upon the ear, a century earlier. Uroscopy, always a favourite theme with the painters of Dutch "medical interiors," is the subject of two illustrations, and it will be noted that Jan Steen shows the doctor inspecting a common short-necked urine bottle, while Bernard Van Orley, in his fine study of Job's trial by sickness, makes the physician hold a long-necked urinal.

The picture from this year's *Calendar* here reproduced is a photograph of the entrance to the former pest-house at Leyden, with the sculptured group by Verhulst over the doorway. This stone carving bears the date 1660, and the child in its grandmother's arms has doubtless just died of plague. The grief-stricken mother, with her younger infant tugging at her robe, is finely portrayed.

These calendars are a distinct contribution to the history of medicine, and there must be a good many of our readers who would like to have a handy means of preserving the illustrations after the almanacs have served their turn. They may be glad to know, therefore, that Mr. Kruseman is preparing a special album in which the pictures from this and previous calendars may be collected.

The price of the *Calendar* is 6s., post free, and the album will be sold at 2s. 6d. The pictures illustrating former issues are obtainable also from the publisher at 'S-Gravenhage, Noordeinde 91, Holland.

THE FATHER OF TRIGONOMETRY.

RICHARD OF WALLINGFORD, the great fourteenth century mathematician and astronomer, whose election six hundred years ago to be Abbot of St. Albans was celebrated last week, was a leper. No doubt the term was applied loosely in that age to include various chronic skin diseases, perhaps psoriasis in particular. But it seems pretty certain that the disease he had was leprosy, for in a prayer composed by him when Abbot he spoke of God's great bounty in inclining "the hearts of the great towards me, that ever when present, they do not abhor my speech and the deformity of my face and hands, but rejoice to converse with me." The mention of deformity of the hands seems to prove that he had something worse than a disease of the skin only. Also in the prayer he speaks of himself as "of lowly estate and smitten by Thy providence with an evil plague, so that I am not worthy to walk among men, but should by law be cast without the camp. Dr. R. T. Gunther of Oxford, who has transcribed the passage in a recent article in *Nature*, states that there are two miniature portraits of Richard in the illuminated chronicle of Matthew Paris, and that in both he is represented with a spotty face. Richard was the son of a blacksmith, and the training he is assumed to have had in the smithy is thought to have stood him in good stead when he set to work on the instruments, the albion and the rectangulus, for which he is still remembered. The two instruments, Dr. Gunther thinks, were intended to be used together. The second instrument was designed to simplify the means of determining the course and place of fixed stars and planets.

Richard, who was born in 1291, was adopted by the Prior of Wallingford, who sent him to Oxford at the age of 17. In 1314, when aged 23, he became a monk at St. Alban's Abbey, but after three years the Abbot sent him back to Oxford as one of the students every Benedictine house was bound to maintain at the University, so that the Order's reputation for learning should be maintained. He entered the newly founded college of Merton, the home of the newer learning, and there found several kindred spirits in the study of mathematics and the observation of natural phenomena. No doubt Richard's main or early interest was in astrology, but, as his work showed, his mind was cast in the scientific mould, and he was ready to seek practical applications. His administrative ability must indeed have impressed his contemporaries, for not only was he elected Abbot of St. Albans in 1326, when only 35, but later on he became a trusted adviser of the King, who took up the cudgels for him when some of the monks of St. Albans, not liking his strict discipline, mutinied when he was discovered to be a leper, and appealed to the Pope to deprive him. The attempt failed, but Richard died in 1335 at the age of 43, after the abbot's house in which he was sleeping had been struck by lightning. Dr. Gunther thinks that in his weakened health the shock was fatal.

is famous, have found an echo in the newspapers, and it is just possible that the general public has been made to understand that if a surgeon is to operate with a threat of this kind hanging over his head he will hesitate to accept the risk and feel inclined to leave nature to do its worst. The two chief discussions at the congress were on the pathology of the cartilages of the knee and the value of conservative operations in inflammatory lesions of the annexes. This last question is engaging a great deal of attention, and it is satisfactory to find how anxious French surgeons have become to avoid surgical procedures which produce mutilations that can never be remedied. The meeting of the congress of surgery was followed immediately by the congress of urology and the congress of hygiene. At both there were exhibitions, where those interested could readily make themselves acquainted with recent mechanical advances.

Students and Post-Graduates.

Every student to-day is impressed by the necessity of losing no time in completing his curriculum. The cost of living has become so high that many of our new students find that the least prolongation of the time of study beyond the period fixed by regulations is impossible. The time has gone when the newly qualified man could afford to spend many months in wandering from one special service to another. Nowadays he must begin at once to earn his living. Later on, perhaps, he will come back to the university; fortunately the universities are realizing the necessity of providing him with the intellectual nourishment of which he stands in need.

The most recent devices used in the schools combined to ensure ultra-rapid methods of teaching. Last year we saw how the cinematograph, combined with the loud-speaker, made it possible to give a simultaneous demonstration of a clinical case to an unlimited number of students. Recently we have had a striking example of this tendency in a demonstration given at the Faculty of Medicine by Dr. Lutembacher: the telecardiophone had proved to us that the presence of the patient was unnecessary, because the sounds were fully registered by the instrument. By carrying the method to its extreme limit Dr. Lutembacher has succeeded, by explanations given through the loud-speaker, in synchronizing what the eyes see and what the ears hear. Some of us wonder whether he has reflected on the possibility that the loud-speaker may in the future allow us to do without the presence of the teacher!

G. MONOD.

England and Wales.

SHEFFIELD MEDICAL DINNER.

THE Sheffield annual medical dinner was held at the Royal Victoria Hotel on November 25th, the chair being taken by Dr. C. J. Patten, professor of anatomy in the University. An even larger number than last year attended, and the guests included the Master Cutler, who, in replying to the toast of "The City and Trade of Sheffield," spoke in high terms of the administrative and medical work of the city. Canon Dolan proposed the toast of "The Medical Profession," and contrasted the prevalent want of settled convictions and definite purpose in the general population with the high ideals, faithfulness to famous traditions, and strong discipline of the medical profession. Sir Thomas Horder, who was the principal medical guest, replied to this toast, and congratulated the Sheffield practitioners on their loyalty to medicine as a profession. Elsewhere he had detected recently signs of laxity in the maintenance of dignity, and even a gratuitous desire to shed traditions which for very many years had endowed the work of the medical profession with nobility and greatness. There was some danger that a craving for publicity and selfishness might diminish the respect in which the profession was generally held. It had in the past been a simple matter for the public to distinguish between a qualified and an unqualified practitioner, and it was in the public interest that this distinction should remain clearly defined. There was some tendency at present to distinguish only between the unsuccessful and the successful unqualified man, rather than to take account of whether he was qualified or not. Referring to the relation of the medical profession to the public, Sir Thomas Horder said he believed that the only sound way of protecting the citizen was the maintenance of personal contact between patient and doctor.

AFTER-HISTORY OF TUBERCULOUS PATIENTS.

The Public Health Committee of the London County Council has presented a report on the after-history of tuberculous patients who received residential treatment under its scheme and were discharged during 1922. The particulars have been collected from reports on the patients obtained approximately three years afterwards. The number of adults discharged during 1922 was 3,636; of these, 182 were not traceable, and in 270 others the diagnosis of tuberculosis was not confirmed. Of the 3,184 cases investigated, 2,957 were pulmonary. These had been classified during treatment into two main groups: A, cases in which the tubercle bacillus was not found in the sputum, and B, in which it was; the latter group had been subdivided into three groups: (1) cases with slight constitutional disturbance, if any, and with obvious signs of very limited extent; (2) cases which could not be included in this first subgroup, but were not sufficiently advanced to be included in (3), which consisted of cases of profound systemic disturbance or constitutional deterioration, and all cases with grave complications:

Condition Three Years Later of Patients Discharged in 1922.

Group.	Total.	Percentage Alive.	Percentage Dead.
A	409	87.0	13.0
B (1)	279	74.2	25.8
B (2)	1,440	48.0	52.0
B (3)	829	8.7	91.3

An investigation of the fitness for work of the 1,510 surviving patients showed that, out of a total of 563 A and B (1) cases, 63 per cent. were at work; the percentages of survivors at work in the B (2) and B (3) groups were respectively 23.6 and 16.7. Similar investigations were made in the case of 578 children—326 with pulmonary and 252 with non-pulmonary (surgical) tuberculosis—discharged during 1922, and the results were as follows:

Group.	Total.	Deaths up to three years after discharge.
A	243	1.6 per cent.
B (1)	16	31.3 "
B (2)	29	51.7 "
B (3)	38	92.1 "
Non-pulmonary	252	8.3 "

MEDICAL DEVELOPMENTS IN MANCHESTER.

In view of the increasing importance of nerve work and the need for specialization in this branch of surgery, the Manchester Royal Infirmary is proposing to create a new office. A neurological surgeon is to be appointed with charge of hospital beds and out-patients specially reserved for this class of work. The laboratory of clinical research at the Infirmary has now been running for twelve months under the new director, Dr. W. M. Roberts. Much useful research work on the alimentary canal is in progress.

The post-graduate lectures at the different hospitals are in full swing, and, judging by the attendance, appear to be much appreciated by the local practitioners. A scheme has been under consideration for some time whereby it is hoped that Manchester will shortly be well to the fore-front as a centre for post-graduate teaching. This scheme will be quite distinct from the undergraduate teaching so far as the actual instruction is concerned. It is proposed to hold short courses of three months in special subjects, whilst in addition intensive courses lasting for three weeks will also be held. The University and the leading hospitals are actively co-operating in this plan, and it is probable that the present post-graduate courses of lectures will be linked up in one big scheme. The course may be launched next autumn, and it is hoped that practitioners from the colonies and abroad will be attracted by the syllabus. Manchester has a rich supply of clinical material and offers excellent facilities for a course of this nature second to none in the country. The new Vice-Chancellor, Dr. W. H. Moberly, has thrown himself with

Owing to our lack of knowledge of the functions of the liver and bile, the disorders and diseases connected therewith continued to be subjects of conjecture until recently. The ancients deemed the liver the principal organ of the body and the focus of all its activity; Harvey's experiments demonstrated that the ancient view was to a large extent erroneous; Glisson showed us something of the structure of the liver; and *post-mortem* examinations demonstrated the changes in the liver which end in death, but afforded no light on the causes of these changes, which may possibly be amenable to remedy.

The experiments of Claude Bernard already referred to started inquiries relating to the real function of the liver. Complications of disease had produced biliary fistulae, which exhibited the large amount of bile daily excreted; but with this concurrent abnormality—that the bile was escaping externally and not into the intestine.

Surgery of the Gall Bladder.

Advances in surgery were preceded by animal experiments showing that the gall bladder might be excised without harm. By further steps the removal of gall stones from the biliary passages was firmly established as a means of preventing fatal inflammations or the supervening of cancer. But there continued obscurity as to the indications for surgical interference, with the result that there was delay in carrying out operations, or the surgeon had to undertake exploratory operations while uncertain as to the conditions needing to be remedied.

In the course of pharmacological experiments carried out on dogs, certain new chemical preparations have been discovered to be excreted by the liver into the bile without being poisonous to the animal. Moreover, when excreted into the biliary tract these preparations prove to be opaque to the *x* rays. Thus by injecting dogs with the preparation and observing the animals under *x* rays, the gall bladder can be seen to be filled with material causing it to be exhibited in a skiagram as a black object. Also the course of the bile can be traced by these shadows through the common bile duct into the intestine. The excretion of bile into the intestine can be demonstrated to be increased by a drug, such as magnesium sulphate taken by the mouth, when it reaches the biliary orifice in the duodenum. Such experiments, first carried out on dogs, have already brought about improvements in surgical treatment. The chemical preparation injected into the patient causes no essential disturbance; the free excretion of bile into the biliary tract and its discharge into the intestine in the healthy subject can now be compared with the different varieties of obstruction in the biliary passages. Gall stones in the gall bladder or bile ducts are composed of material translucent to *x* rays, which cause no shadow; they are now made apparent as clear rounded areas in the midst of a dense black shadow. The surgeon can now be furnished with information as to the exact position of a gall stone, or a biliary obstruction, before commencing the operation. The most approved preparation at the moment appears to be tetraiodophenolphthalein-sodium, administered either by the mouth or by intravenous injection.

Distemper in Dogs.

Continuous research is going on, and valuable results have already been obtained. The problem is very difficult, but there is every reason to hope for ultimate success. Success will probably throw light not only on distemper but on a number of obscure human diseases.

Pregnancy and its Disorders.

Pregnancy and its disorders in general are very difficult to investigate. The bitch is particularly suited for this study, as the relations between mother and foetus are more like those found in the human species than they are in those of herbivorous animals. The cat is here too small and temperamentally unsuitable, while monkeys rarely breed in captivity. Our knowledge of the influence of the ovaries on the sexual cycle and the mechanism of uterine contraction is the outcome of experiments on dogs.

Anaesthetics.

Dogs are best anaesthetized without causing fright or discomfort by means of chloroform. But they are very easily killed by an overdose in the hands of an inexperienced administrator. An investigation of the cause of this death, produced more readily in the dog than man, has led to invaluable information, and demonstrated the action of chloroform on the vagal system.

Conclusion.

Medical science cannot remain stationary; unless it advances it will cease to attract the best brains and will retrogress; freedom for research is essential. It is an impossible position if a scientist arrives at a point where the next step involves research on dogs and then has to stop.

Restriction will as surely kill research as the forbidding of dissection on human bodies in Mohammedan countries killed Arabic medical science, which—as a result of the knowledge obtained from Greek science, as advanced by experiment in Alexandria—was in the early Middle Ages far in advance of European medical science of the time.

France.

[FROM OUR OWN CORRESPONDENT.]

Summer Gatherings.

Two fresh manifestations of the great activity prevailing in the medical profession in France were afforded this summer by the Journées Médicales de Paris and the Assemblée extraordinaire de l'Union des Syndicats. The journées were held in July, and the members met in the Grand Palais. As is probably well known, this type of meeting had its origin in Brussels, and it seems destined to have a wide extension. During the month of November this year the journées de Montpellier were held. They comprised lectures and demonstrations designed to give practitioners information of the latest progress made in the art of treatment, using that term in its widest sense. Professor Widal, who is ever at the head of every modern movement, was the moving spirit of this gathering. It was not, however, because he is a university professor that he occupied the chair, but for the more splendid reason that he is the leading physician in France. Nearly two thousand persons attended, which, for a first meeting, was a very striking success.

The Union des Syndicats Médicaux made an attempt to define the attitude the medical profession in France should take in face of the new laws about social assurance which Parliament is about to adopt. By a very large majority it was decided that the members of the Union should refuse to collaborate in carrying out the law if the assurance was to be at the expense of the medical profession. In other words, while the practitioner does not wish to profit from the operation of the law, it is resolved to apply to all compulsorily insured persons the minimum syndicate tariff. Unfortunately the Union did not succeed in ending the conflict by which the 12,000 members of the Union are separated from 3,000 federated practitioners who have recently left it. Though the attempt at reconciliation failed, there never was a time when a united front was more desirable than the present.

Congresses.

Medical life, which during the summer seems to be so wholly concentrated in the thermal stations, begins again in Paris in October. It has been marked this year, as in previous years, by the congress of surgery in Paris. Its president, Professor Faure, in his inaugural address, which was delivered in the presence of representatives of the Government, did not hesitate to express his fear that the state of public opinion rendered the practice of surgery singularly difficult. He was referring to the frequency with which patients who had been operated upon, and were, sometimes perhaps quite honestly, dissatisfied with the results, instituted legal proceedings against the surgeon. Should a fracture, after consolidation, leave some functional defect, or should a scar be deemed unsatisfactory, a demand was made for at least pecuniary compensation. Only too frequently have the results of an operation, demanded for the relief of unbearable suffering, led to the unfortunate surgeon being treated as a malefactor. Burning words such as these, delivered with all the eloquence for which Professor Faure

of deaths among children under 1 year of age during 1925 was 751, giving a death rate of 96 per 1,000 births, as compared with 99 in the preceding year. Provision has to be made in the various agencies for an estimated number of children under 5 years in the city amounting to 32,628. During the past year the health-visiting nurses paid 6,690 visits to newborn children, 64,128 visits to children between 1 and 5 years, and 1,312 visits to expectant mothers—a total of 72,130 visits, or an average of 3,606 visits by each nurse. The increased appreciation by the public of the advice given at ante-natal clinics is shown by the fact that total attendances at these during 1925 were 8,798, as against 7,769 for the previous year.

Town Planning.

A lecture under the auspices of the Edinburgh Women Citizens' Association was delivered on November 17th by Captain Reiss, chairman of the Garden Cities and Town Planning Association, London. He demonstrated, by means of photographs taken from the air, how the old plan of rows of monotonous and closely packed buildings, with little space between them, was being displaced by houses grouped in crescents and squares, in such a way as to ensure a maximum of sunlight and fresh air. Regard must be had also to industrial development, and schemes for neighbouring towns should be considered together. Additional land adjacent to new residential quarters might often be secured for factories, and in this way much expense saved in the matter of transport of workers. Until quite recently the artisan had never been properly housed as housing was understood to-day. Since the armistice the number of houses actually built in Great Britain had only just met the ordinary annual demands. Captain Reiss urged that schemes for slum clearance should be thought out well beforehand. He described a scheme in Bristol where half an acre of land was secured close to a slum area about to be cleared. Houses were built upon it into which tenants of the old houses were persuaded to remove, and their old houses were then demolished and rebuilt. Other tenants were then moved into the latter, and their houses in turn rebuilt. In this way, with a small area of ground, a considerable slum area could be replaced, and there were always a few empty houses to work upon.

Bequest to Inverness Infirmary.

The directors of the Northern Infirmary at Inverness have received notice of a bequest by the late Mr. John Mackay of Montreal, leaving the residue of his estate, which is expected to amount to approximately £20,000, to the Infirmary. Mr. Mackay, who died in October, was a native of Inverness and went to Canada as a boy, and there built up a flourishing business as a stockbroker and banker. The directors of the Northern Infirmary are at present endeavouring to raise £100,000 for the purpose of erecting a hospital to meet the needs of the Highlands, and towards this sum £60,000, including Mr. Mackay's bequest, has already been received.

Welfare Clinics and Birth Control.

In an address delivered under the auspices of the Society for Equal Citizenship, on November 23rd, Dr. Joan K. Rose suggested that questions involving birth control could most suitably be considered at ante-natal clinics, and at these post-natal work should also be undertaken. In such a clinic the subject seemed to be placed in its proper perspective—as a small piece only of a complete maternity service whose aim was to secure the health of both children and mothers. A large family, the lecturer considered, was not in itself a thing to be avoided. The defect lay only in a large family of poor stock, below the poverty line, which was liable to be a hindrance to social evolution. Encouragement of a good stock should go along with discouragement of the bad.

Hospital for Incurables, Edinburgh.

The report presented to the annual meeting of the Royal Edinburgh Hospital for Incurables showed that the daily average of patients under treatment had been 201. At the end of the year there had been a waiting list of 56, of which 44 were women. The chairman, Sir Henry Cook, said that the managers wished it to be clearly understood that patients were not admitted by rotation, but according to the urgency of their condition. The general hospitals, owing to the pressure upon their accommodation, could not retain cases of incurable disease, even when in urgent need of hospital treatment, and such cases were especially suitable for the Longmore and Liberton hospitals. The ordinary income for the year ending March 31st, 1926, had been £12,000, and the ordinary expenditure £18,796, the balance having been met out of capital. The average cost per occupied bed for the year in the two hospitals of Longmore and Liberton had been £85. Dr. William Robertson, medical officer of health for Edinburgh, said that the low cost per bed reflected very favourably upon the management, because, taking other large institutions in the city, this cost varied from £99 to £143 per annum. A place like this hospital was entitled to support because of its humanitarian work, and if each person over 15 years of age in Edinburgh would subscribe 6d. per annum this would yield a revenue of £7,866, which would amply meet the deficit on the ordinary income. Baillie Dr. Nasmyth, in moving a vote of thanks to the medical officers, said that the two hospitals provided one-third of the 602 beds available in Scotland for incurable cases.

Ireland.

The Problem of the Crippled Child.

The annual report of St. Mary's Open-Air Hospital, under the care of the Sisters of Charity, has been published. The report states that the Cappagh Hospital is the nucleus for any national campaign which aims at the prevention and cure of diseases leading to deformity in children. Its site is ideal, the building is of the most modern pattern for the purpose, and its therapeutic equipment, including an artificial-sun lamp for use in the sunless days of winter, is thoroughly up to date. The education of the children who are confined to bed for long periods in the hospital is carried out under open-air conditions by specially trained teachers under the approval and supervision of the National Board of Education. The nursing is not excelled in any institution at home or abroad, and the members of the nursing staff have not hesitated to visit and work in similar hospitals abroad in order to compare and improve their methods. Here, therefore, it is argued, is a hospital ready to hand to act as the central hospital of a scheme, which cannot now be long delayed, to deal effectively and systematically with the problem of the cripple in Ireland. The Government is making an effort to increase the efficiency of public health work in this country. Prospective county medical officers of health are undergoing special training abroad. There is a prospect of the badly needed medical inspection of schools materializing. All this must lead to the detection of many cases of tuberculous disease of the bones and joints, of infantile paralysis, rickets, and other deforming conditions, which, in their early stages require skilled orthopaedic treatment in the open-air hospital. Now is the time to provide adequate accommodation for such cases if these public health measures are to provide any practical results, and not merely statistics. But the accommodation requires immediate extension, apart altogether from the cases the new public health measures may bring for treatment. The eighty beds are constantly full. The Sisters at Cappagh believed that if the people of Ireland knew the sufferings of the doomed patients who could not be admitted, accommodation would be provided. They attempted to tell of this need, they embarked on the erection of a new institution, adjoining the present one, but they have not succeeded so far in providing additional accommodation. Two years ago the erection of the new hospital was commenced. Everything went well for a time; the foundations were laid, the walls were rising, but lack of finance and want of response to many appeals caused an inevitable closing down of building operations. To-day a building capable of housing 120 additional cases stands roofless—it has walls, it is true—and the crippled children of Ireland are left to their fate.

great enthusiasm into the work of the University, and appears to be taking special interest in the medical school. This was seen at the opening meeting of the Medical Society, when he presided during the delivery of the presidential address by Dr. A. A. Mumford.

Manchester, and more especially the Royal Infirmary, has recently suffered a great loss in the death of Sir William Cobbett in his eighty-first year. Sir William became chairman of the board of management of the Infirmary in 1904, and largely inspired the removal of the hospital to the new buildings in Oxford Road. It was as a mark of his labours in this capacity that he received his knighthood in 1909.

WIGAN INFIRMARY.

The new radiological department at Wigan Infirmary, which has been established at a cost of about £10,500, was opened by Dr. Robert Knox on November 16th. The new building contains rooms for radiographic diagnosis and treatment and two rooms for heliotherapy. Great care has been taken to make the department as completely up to date as possible, and special attention has been devoted to protecting the operators and the patients. Dr. Knox delivered an address on the advance of radiology, and emphasized the importance of close co-operation between the general hospital staff and the radiologists. The powerful apparatus which had been installed would make it possible to treat all forms of malignant disease, and he was glad that the bulk of the apparatus was British. The chairman stated that over £60,000 had been spent in the establishment of new departments at the Infirmary during the past ten years. He claimed that the operating theatres were the finest in the country.

BRITISH DENTAL HOSPITAL.

The annual meeting of the British Dental Hospital was held at the house of the British Dental Association on November 25th. Sir Harry Baldwin, who presided, said that last year the British Dental Hospital had treated about 20,000 cases. It ramified into various parts of London, and had five chief hospital centres and also dental clinics in populous districts. The hospital was opening new centres, and negotiations were proceeding with regard to the opening of yet others. The hospital represented in the true sense of the word a public dental service. The service was rendered by dental surgeons to a great mass of the public who, while able to pay something towards the cost, were not able to afford the customary fees. On that basis the hospital had been able to pay its way. The dental surgeons on its staff, of whom there were between forty and fifty, and the anaesthetists, of whom there were about fourteen, practically did their work for love, except for a small allowance for expenses. The service was not restricted to insured persons or to children, but was open to all persons whose means were insufficient to meet the ordinary cost of dental treatment. The hospital also engaged in propaganda and instruction in dental hygiene. He announced that the Duchess of York had consented to succeed the late Queen Alexandra as patroness. An address was then delivered by Colonel T. A. Hunter, C.B.E., dental director for New Zealand. Colonel Hunter described how, following upon the war, which had revealed a good deal of dental deficiency, the New Zealand Government instituted a scheme for the prevention and treatment of dental troubles in school children. On instituting the scheme it was found that no less than 95 per cent. of the children required some form of treatment. It was resolved to aim at prevention in young children, and to follow the children up as far as possible throughout their school life. To this end a service of specially trained dental nurses was established to undertake dental supervision of the children. These young women received two years' training, and they started work at a minimum salary of £195, rising to £225. Professional interests were carefully safeguarded, and the dental nurses were not allowed to practise outside their sphere, even in association with a registered practitioner. At the present time there were fifty of these nurses in the field and sixty probationers in training, and the Minister of Health of New Zealand was anxious that the numbers should be increased. The nurses were placed in the schools as soon as their training was completed, and the children were examined every six months. At the present moment 30,000 children were under treatment or observation.

Scotland.

RELATION OF VOLUNTARY TO MUNICIPAL HOSPITALS.

AT a meeting of the Aberdeen Town Council on November 15th a letter received from the clerk of the Aberdeen Royal Infirmary was remitted to the Public Health Committee for consideration. This letter contained the observations of the honorary medical and surgical staff of the Infirmary with regard to the hospital proposals of the town council. The Infirmary staff expressed the opinion that the concentration of patients in one hospital area is of benefit both to patients and to medical students, and affirmed very strongly that the main venereal disease department should continue to be at the Infirmary, not at a special clinic; the staff also deprecates strongly the transference of cases of surgical tuberculosis, pneumonia, and other illnesses from the voluntary to the municipal hospitals, as proposed and practised in some areas.

LAND AND NATION LEAGUE.

Dr. Joseph Hunter, M.O.H. for Dumfries, has been appointed director in England and Wales for the work of the Land and Nation League. Dr. Hunter was approached some time ago to stand as candidate in the Liberal interest for Dumfries Burghs, but at that time preferred to exert his activities on behalf of Dr. Chapple, who was then with a parliamentary delegation in South Africa. It is expected that Dr. Hunter will be asked to contest the constituency in the Liberal interest at the next election. Dr. Hunter is a graduate in medicine of Edinburgh, and D.P.H. of Cambridge. He served in the South African war, and is a recognized authority upon the life and works of the poet Robert Burns.

SCOTTISH SECRETARY ON SOCIAL SERVICE.

The report presented to the annual meeting of the Edinburgh University Settlement, when Principal Sir J. Alfred Ewing presided, referred to an appeal for a sum of £30,000 for the purpose of rebuilding the settlement which had been issued shortly before the outbreak of the strike, and in consequence had not been pressed upon the public, although a sum of £5,547 had already been contributed. Sir John Gilmour, Secretary of State for Scotland and Lord Rector of Edinburgh University, said that when he was a student in the University the settlement did not exist, but when he passed to the University of Cambridge he was brought directly in touch with just such a movement as the present one. In certain directions some of the great English universities had been working at these problems for a longer time, but their importance was now recognized in other great centres of life. Everyone knew that there were differences in ability to reach the higher stages of education, but all true citizens recognized the importance of acquainting themselves with the conditions of life, circumstances, and lines of thought of those who moved in other spheres than their own. Many of those who had taken part in the great war had hoped that the very close and personal association which grew up between the leaders of the men in the field and the rank and file would break down many of those foolish misunderstandings of class distinction. A great deal had been done in this direction. The men and women students of to-day would be the leaders of the future, and the power of leadership must be acquired by knowledge of the circumstances of life in other quarters of the world.

HEALTH OF EDINBURGH CHILDREN.

A report submitted by medical officers of the Scottish Board of Health to the Public Health Subcommittee of Edinburgh Town Council states the results of an inspection dealing with the arrangements for child welfare in Edinburgh. The maternity and child welfare scheme is stated to be both effective and economical. There are some forty clinics, day nurseries, play centres, and other institutional advantages arranged for children. The total number

pay, and at fees, for people in a better position, that they have no difficulty in meeting.

If surgeons are not encouraged, surgery in this country will degenerate, as it will not be worth a man's while to go through the arduous toil and incur the expense of acquiring surgical skill.—I am, etc.

November 28th. G. P.

THE PROPHYLAXIS OF POLIOMYELITIS.

SIR,—In view of the prevalence of poliomyelitis at the present time, it seems advisable to draw attention to the important observations of Flexner and Clark published in 1911 on the effects of hexamine (urotropine) in preventing the disease in monkeys.

"When a large dose is administered by mouth, its presence can be demonstrated in the cerebro-spinal fluid soon afterwards. We have ascertained that when the virus of poliomyelitis is injected intracerebrally in monkeys, in which the hexamine is already present in the fluid, and the drug is then administered by mouth daily thereafter, in a proportion of animals so treated . . . the incubation period of the disease is prolonged from six to eight to twenty-four days, and the onset of paralysis is entirely prevented."

Any attempts to prevent the disease in contacts by similar means have in the past been unlikely to meet with success owing to the very small dose which has to be given on account of the irritation of the bladder and haematuria, which result from the setting free of formalin in acid urine. Our observations in the treatment of cholecystitis during the last four years have shown, however, that as much as 100 grains of hexamine can be safely given three times a day so long as alkalis are administered at the same time in sufficient quantity to keep the urine alkaline, as formalin cannot then be set free and the bladder is not irritated. Dr. F. A. Knott has shown that the alkali does not prevent the urotropine acting on the alkaline bile, and in view of Flexner and Clark's observations it seems unlikely that it would inhibit the action in the cerebro-spinal fluid, which is also always alkaline. I would therefore suggest giving these large doses to all people who have been in contact with the disease until the incubation period of fourteen days has passed, and perhaps for an additional fourteen days because of the possibility that the incubation period would be lengthened by the hexamine as it is in monkeys.

Although Flexner and Clark do not appear to have made any observations as to whether hexamine prevents the full development of the symptom in monkeys when the infection is once established, it has become usual to give the drug during the acute stage of the natural disease. I would suggest that at the first suspicion of the disease being present 100 grains should be given three times a day instead of the usual 10 or 15 grains.

A mixture containing 60 grains each of sodium bicarbonate and potassium citrate in 1 ounce of water is given after breakfast, after tea, and after a glass of milk last thing at night. The hexamine is given at the same time, but in a different mixture, so that the dose can, if necessary, be varied without altering the dose of alkali. It is perhaps safest to begin with 50 grains in 1/2 ounce of water and add a drachm of the solution to each dose every day till the full 100 grains in 1 ounce of water are being given. In the unusual event of bladder irritation occurring the dose of hexamine should be reduced slightly and the dose of alkali further increased.—I am, etc.,

ARTHUR F. HURST.

New Lodge Clinic, Windsor Forest,
Nov. 24th.

EPIDEMIC POLIO-ENCEPHALOMYELITIS IN SCHOOLS.

SIR,—This correspondence raises a most interesting epidemiological problem, which may be enunciated in these terms: A few cases of an illness which is known to develop sometimes into an epidemic have occurred within a closed community; is it better to keep that community closed or to disperse its members, (*a*) from the point of view of the members of the community, (*b*) from that of the whole population?

In the first place, we must ask whether we have sufficient knowledge of the *epidemiology* of the particular illness to be able to say that it is, epidemiologically, *sui generis*, so that analogies drawn from the epidemiological behaviour of other illnesses are worthless. The two best summaries of epidemiological knowledge of poliomyelitis which will be available to all readers are, I think, Batten's paper[1] and Reece's study of the epidemics of 1911 in Cornwall and Devon.[2]

The conclusions we may draw from past experiences are: (1) That, taking as a measure the ratio of cases exposed to risk, poliomyelitis is much less infective than scarlet fever or diphtheria (Batten, p. 206). Such epidemics as that of Trästena in 1905 and Stoke Rivers in 1911 suggest that the intimate admixture of children from different families in a common school is an important factor in increasing infectivity. A corollary is that the considerations suggested by Power's classical report on diphtheria in Pirbright are relevant. If I am right in this contention (I, of course, recognize that it may be swept away by the production of real proof that the epidemiology of poliomyelitis is *sui generis*) then experimental work on the effect of aggregation as compared with segregation in other infections is relevant.

In the third of Professor Topley's Milroy Lectures[3] will be found a summary of experiments on mouse-typhoid. The problem was to determine whether, when an epidemic had begun in a herd of mice, the mortality would be affected by partial segregation. Suppose that from such a community we take 100 individuals and keep them together in a herd, and another 100 individuals whom we divide into ten groups of 10 each, which 100 will experience the heavier mortality? The answer was unequivocal. If the segregation is effected at an early stage of the epidemic, before many deaths have occurred, the ten batches of 10 will suffer much less than the undivided 100. If one delays until the epidemic has gathered strength, segregation will have little effect. As Topley says:

"It is not difficult to suggest a possible mechanism for the effect of dispersal upon the total mortality. Whether the important factors in the production of fatal infection be the size of the first dose of bacteria received, the rapidity with which successive doses follow each other, the relative virulence of the bacteria, or the relative resistance of the receiving host, we have seen that the effectiveness of these factors must be expressed in terms of chance. By dispersing the population at risk we shall redistribute these chances in a random way, and the sphere of action of those mice which are acting as dangerous centres of infection will be limited."

So far, then, as the interests of the members of the herd themselves are concerned, breaking the herd up is clearly the right policy. But it may fairly be contended that the parallel is not a strict one, for the groups of 10 were not mixed with other mice which had not formed part of the original community. May not the dispersed members of the small herd, the school, light up disease in the general community; may not the interests of the small herd be opposed to those of the larger herd, the whole population, of which they are part?

The general teaching of epidemiology that the presence of a sick person or a carrier is only one of the factors of an epidemic is familiar to all educated men. Experimental work of Professor Topley and myself shows that even in diseases of much greater infectivity than poliomyelitis (for example, pasteurella infection) it is not sudden exposure to a large number of non-immunes, but the steady circulation of non-immunes through a community containing infected or carrying individuals, which is a fundamental condition of high epidemicity.[4] It does not appear, therefore, that any increased risk to the greater herd does counterbalance the advantage to the smaller herd which dispersal of the latter involves.

Finally it may be noted that when the survivors of the dispersed herds in Topley's above cited experiments were reassembled (in the case where dispersal took place before the epidemic in the original herd had reached a maximum) the disease broke out again. Hence it is prudent only to reassemble a herd after a considerable interval, and it might be wise not to admit new comers to it for a still longer time.

[1] *Proc. Roy. Soc. Med.*, Epidem. Sect., vol. iv, p. 198.
[2] Ibid., vol. v, p. 59.
[3] *Lancet*, March 27th, 1926.
[4] *Journ. Hyg.*, xxiv, 1925, pp. 45-110.

Correspondence.

SURGERY IN GENERAL PRACTICE.

SIR,—The President of the Royal Society of Medicine has adopted a singular method of supporting the plea, so eloquently voiced by Sir Berkeley Moynihan, that the profession should seek to gain a closer understanding with the lay public. Had Sir James Berry elected to utter his diatribe in the privacy of a meeting of the Section of Surgery of his society there would be no possible cause for complaint. The whole question might make an excellent subject for debate, but to choose an occasion when he must have known that such a pronouncement would be eagerly snapped up by the sensation-mongers of the lay press was surely to show scant courtesy to the humbler members of the profession who had no chance to speak in defence of themselves.

That the war is responsible for what we might call the "democratization of surgery" I do not wholly agree. I held resident surgical posts at my own school in the years preceding the war, and it used to be said then by the younger surgeons that the field of their activities would be considerably circumscribed, as the well educated general practitioner would be capable of doing much of his own operative work. As house-surgeons we used to be given the opportunity of doing a considerable amount of major operating, with the encouragement of our chiefs. Why, with the added advantage of a riper experience to assist us, we should be abused for doing the same thing in our practices passes the understanding of the average general practitioner. I agree with Sir James Berry that operating should only be undertaken by men who have had a thoroughly good grounding—but it is only such men who are likely to accept such a responsibility. To exclude all those who cannot make the practice of pure surgery their life-work displays an extraordinary ignorance of things as they are outside all but the biggest towns. Take the case of an industrial town with a population of 50,000: there is any amount of surgical work to be done, but I can state positively from experience that under the present conditions such a town cannot support a pure surgeon, as nine-tenths of the work has to be performed gratuitously. In the smaller towns situated at a distance from the big centres many lives can be, and are, saved daily by men tackling acute cases on the spot. Would Sir James prefer that these cases should run all the risks of delay, while waiting for a surgical specialist to come from a distance, than that a competent general practitioner should intervene? Personally, I do not think that there is nearly so much chance of the general practitioner surgeon overreaching himself as there is of the half-baked specialist. Though Sir James Berry may not know it, the general practitioner has to work under a fiercer searchlight than that which beats upon the consultant; he cannot make a mess of a case, and then depart back to the Olympian heights of Harley Street or its local equivalent.

The consultant is not liable to meet that mastoid with facial paralysis every time he walks abroad. The general practitioner is in daily contact with the friends and relations as well as the patient himself, and is constantly brought face to face with them afterwards, so is it likely that he is going to take the slightest risk which he does not conscientiously feel able quite adequately to meet? Personally I do not mind confessing that I would rather have fifty acute abdomens to cope with than one fractured femur (that is about the ratio one meets with these cases in an ordinary mixed type of practice), and I would sooner invite a specialist to undertake the whole treatment of such a fracture than I would a case of acute appendicitis. I rather doubt whether most consultants would appreciate that compliment. The enormous and constantly increasing scope of surgery makes it inevitable that the art of operating must be extended over an ever-widening field; it behoves all who have the best interests of surgery at heart to seek to turn out more perfect technicians in greater numbers, rather than, by hinting at mysteries where none exist, to attempt to restrict practice to the fortunate few.—I am, etc.,

Bridlington, Yorks, Nov. 29th. C. J. GORDON TAYLOR.

SIR,—Sir James Berry's remarks were a great testimonial to the really excellent surgical work performed by general practitioners in provincial hospitals. Given a well equipped, well organized operating theatre, with a well trained nursing staff, then it is only a matter of practice before a quite efficient general surgeon is produced. The appointment of assistant surgeons was a most beneficent reform in our provincial hospitals. One of the most glaring defects of our hospital system is the lack of co-operation between hospitals of different sizes. The teaching hospitals should be linked up with the larger non-teaching hospitals, and these with the smaller. Surgeons from the teaching hospitals ought to be on the active working staffs of large non-teaching hospitals, and surgeons from these on the staffs of smaller and cottage hospitals.

Before closing let me plead that more attention and care should be given to the medical cases in the non-teaching provincial hospitals.—I am, etc.,

Southend-on-Sea, Nov. 29th. FERD. REES, M.D.

SIR,—May I, as a general practitioner in a rather remote district, and who does *not* undertake major surgery, be allowed to add to the admirable letters on this subject in your issue of November 27th?

Away from all but the largest cities, the ordinary general practitioner recognizes, and accepts, the fact that his major surgery is, and in most cases necessarily must be, done by others whose facilities for surgical work, by reason of their appointment to neighbouring hospitals of greater or less magnitude, are greater than his own, but whose daily bread is also obtained by general practice.

In nearly every case these same general practitioner surgeons have won his confidence both ethically and surgically, and their generosity in the matter of fees is, as every country practitioner will gratefully acknowledge, indisputable, and better known to himself perhaps than to his patients. I have seen an acute abdominal operation most skilfully performed in the desert by a general practitioner, and am myself indebted for my present existence to an operation in a military hospital by a general practitioner surgeon. After thirty years in ordinary general practice I shall continue, slightly altering Sir James Berry's "cryptic words," to do my best to discover those among my patients who "want an operation" and myself "take care who does it." The pure specialist's fees in these altered times are beyond the power of the vast majority of one's patients to disburse; and, perhaps mistakenly, some of us have gathered the idea that thoughts and inclinations sometimes lean too strongly to removal of some favourite anatomical part whatever the primary condition, and the patient may get (or lose) even more than he pays for.

Competent surgeons are born as well as made, and while training and experience are essential in surgical operating as in all skilled crafts, only the few deserve the true confidence of the many and less gifted, and this is at least as frequently given to the surgically inclined general practitioner of proved merit as to the pure specialist surgeon whose early finances have enabled him to wait those years required to catch the public eye and get a bit of his own back.—I am, etc.,

November 28th. ANOTHER GENERAL PRACTITIONER.

SIR,—I have always maintained that a general practitioner should not attempt major surgery. He should do unto his patients as he would be done unto, and should ask himself one question, "Would he call in a general practitioner to perform an abdominal operation on himself or a member of his family?"

Surgery is an art, and requires great practice, ability, and dexterity. It is absurd to say that a busy general practitioner can be as efficient as a surgeon, who gives all his time to his art and who has undergone a long apprenticeship. A general practitioner may be quite capable of removing an appendix, but is he certain that his diagnosis is correct, and is he prepared to deal with anything he may find in the abdomen?

As regards fees, I have no difficulty in getting my major surgical work done gratis for those who cannot afford to

atmosphere created by such amenities a reasonable exchange of views on any subject is impossible.

It is not my custom to answer questions addressed to me in the tone adopted by Dr. Galiagher, but if he will consult Luciani's *Human Physiology* (Macmillan, 1913), vol. ii, p. 493, he may possibly be led to conclude that the problem of cutaneous respiration is not yet ripe for the kind of dogmatic statement which he seems to affect.—I am, etc.,

London, N.W.1, Nov. 30th. LEONARD WILLIAMS.

"RISING OF THE LIGHTS."

SIR,—The quotation from Buchan's *Domestic Medicine* is very interesting, as it gives an explanation of this mysterious name, but I think that if it refers to deaths from throat disease it would apply to all forms of inflammatory trouble, not diphtheria only. These would include acute septic conditions like angina Ludovici. Now there are a great many references to "putrid sore throat," which in some but not in all cases may have been diphtherial. Our ancestors could distinguish different kinds of such inflammations. Huxham's, of course, is the classical instance of a clear definition. The wonder is that there were not more returns under this head, seeing that in London alone, as late as 1850, not one water supply was uncontaminated, as may be gathered from Hassall's pamphlet of that date, with excellent coloured illustrations of the poisonous material found in *every one* of the then sources of the various water companies. Sewer drainage had added to the pollution of the Thames in the nineteenth century.—I am, etc.,

Appledore, Kent, Nov. 17th. F. WILLIAM COCK.

SIR,—I have come across this expression both in the East and West of England, with varying meanings. In Cornwall it is used of flatulent dyspepsia with frequent eructations. In the course of my collection of material for a book on folk-medicine in Eastern England I have received the following items:

From a pharmacist at Peterborough: "In 1890 a woman called at my pharmacy from Thorney Fen for something for her husband who was really suffering from liver and stomach troubles. She complained he had always something in his throat; on being asked if he had taken any medicine, imagine my feelings when the reply came, 'He had swallowed some shot to keep his lights from rising.' On making inquiry afterwards I found this to be a common practice."

A doctor in North-East Suffolk wrote in 1925: "An old lady of my acquaintance used to swallow small shot in handfuls 'to keep her heart and lights down.' She never suffered from lead poisoning, but died of an intracapsular fracture of the hip, possibly due to increasing weight."

Varden, quoting *Chambers's Book of Days* (about a hundred years ago), tells of a good old soul who was troubled by "rising of the lights" and who "tooked a dose of shot and that kept 'em down." I have heard of another old lady who, troubled by the same complaint, used to "shove 'em (the lights) down with a tablespoon."

With regard to the application of remedies to the soles of the feet, I have come across a number of modern instances, most of them rather unpleasant.

For pneumonia "wrap the patient's feet in calf's liver hot from the slaughter and give a teaspoonful of goose grease at frequent intervals" (a gipsy remedy from Blythburgh, Suffolk).

For typhoid fever "the spleen of a bullock, raw, applied to the soles of the patient's feet as a cure" (from Great Yarmouth). "The milt or spleen of a cow or the skirt of a sheep, applied to the feet, is supposed to draw the fever from the head and thus bring about a speedy cure" (*East Anglian Handbook*, 1885).

For whooping-cough "peel a garlic and wear it in the right shoe" (Welby, Suffolk).

I have met with sulphur placed in the boots as a remedy for rheumatism in Norfolk, and for psoriasis in Cornwall. In the latter case it was prescribed by a doctor, and, combined with a thorough dredging of sulphur all over the body, effected a cure in a case of "English leprosy."

With such a widespread use of the term "rising of the lights" nowadays, it is very unlikely that its meaning was ever confined to any specific disease, unless by a purely local custom. The class of people who would use such a term are far too conservative to have allowed a hundred years or two to have made any difference in their nomenclature. "Lights" to the ordinary person means an animal's lungs, but if the local butcher is asked for a pennyworth of "lights" for the dog, probably some spleen and possibly pancreas will be included in the parcel along with the lung and trachea. I think "rising of the lights" probably meant any disease that caused a sensation of something coming up, or an actual appearance of something, whether from lungs or stomach.—I am, etc.,

Norwich, Nov. 14th. MARK R. TAYLOR.

SIR,—As the writer of the article in your Nova et Vetera column of October 9th on the Bills of Mortality, I have been much interested in the correspondence on "rising of the lights."

As a student I was told that this term was a synonym for emphysema, but it appears from your correspondents' letters and from a discussion of the question in *Notes and Queries* (8th series, vol. vi, pp. 308, 415, and 516) in 1894 that it has been used to denote a sense of fullness in the throat accompanied by oppressed breathing. John Graunt, in his "Observations," remarks on the relation in the Bills of Mortality between "rising of the lights" and "mother," and shrewdly suggests that the two were names for the same thing, so that "rising of the lights" must be simply globus hystericus. It is difficult to accept this suggestion in this case, seeing that hysteria is not a very fatal disease, yet in 1629 forty-four deaths were attributed to "rising of the lights," and only one to "mother."

Another contributor to *Notes and Queries* quotes MacCulloch as saying that Sydenham solved the question in treating of this disease under hysteria. Another contributor, J. Astley, writing from Coventry, stated:

"In this district a sense of fullness in the throat, accompanied by oppressed breathing, arising from disordered stomach, is attributed to a 'rising of the lights,' i.e. lungs, and the common remedy is to take either some small gun-shots, or a globule of mercury (about a quarter of an ounce), in order by their weight to keep the lungs down! I cannot report any beneficial effect of the medicine."

This remedy of small shot or mercury, meant to force the rising lungs to descend, seems to have been very general.

The identification with croup is strengthened by the fact that in the Bills of Mortality for 1796 rising of the lights disappears as a cause of disease and croup alone remains.

Finally, the term would appear to be popular in America, for the author of *Mrs. Wiggs of the Cabbage Patch* puts it into the mouth of one of her characters as applied to a horse! (*Notes and Queries*, 10th series, vol. iv, p. 66).—I am, etc.,

November 29th. E. M. L.

*** We are afraid that these lights must now be quenched.

APPENDICITIS AND VEGETARIANISM.

SIR,—The statistics quoted by Mr. Robert H. Perks in your issue of October 2nd (p. 616), on the infrequency of appendicitis among the natives of Northern India, are rendered more striking when it is remembered that the majority of the inhabitants of the Punjab are Moslems or Sikhs, and that both communities are extensive meat eaters. They also, unlike the Hindu community, allow themselves to suffer severely from constipation. It is therefore not quite clear to what they owe their immunity from the disease.

Captain Williamson's statement in your issue of October 16th, that he has never removed an Oriental appendix, is surprising and contrary to my experience in my very restricted surgical practice in India. I have performed eight operations for appendicitis during the past two years in India, and of these three were on Indians. The pathological conditions found in each case were: (1) Gangrenous appendicitis with peritonitis, (2) perforated appendix with abscess, (3) catarrhal appendicitis.

In two other instances when operating on Indians for tuberculous peritonitis and pancreatic cyst respectively, the appendixes were observed to be the seat of catarrhal inflammation.—I am, etc.,

J. DESMOND O'NEILL, M.B., B.Ch.,
Jubbulpore, India, Nov. 7th. Lieutenant I.M.S.

The continuous study of morbidity in closed communities, such as boarding schools, is of extraordinary interest. A report to the Medical Research Council by Surgeon-Commander Dudley (now at press) illustrates this and also our real need for further information.—I am, etc.,

Loughton, Nov. 27th. MAJOR GREENWOOD.

CANCER RESEARCH.

SIR,—The valuable paper entitled "Some physico-chemical and biochemical aspects of malignant neoplasms" by Professor W. C. M. Lewis (BRITISH MEDICAL JOURNAL, November 20th, p. 920) contains many interesting observations made by foreign scientific men, but gives little or no recognition of the important work of our own countrymen on the subject. For instance, I am surprised to find no reference to the work of Dr. J. A. Shaw-Mackenzie on the biochemical side of the problem, who for many years has shown, among other facts, that tissue lipolysis and utilization of fats is defective in cancer.

In the subheading "Lipolytic (esterase) activity in malignancy" Professor Lewis recalls the observation of Bauer[1] that "every human serum examined contains fat-splitting enzymes which are greatly decreased in carcinoma and advanced phthisis"; and he goes on to emphasize a differentiation between true fat-splitting enzymes and esterases which act on lecithin, as indicated by Bloor.[2] A differentiation between a true fat-splitting enzyme and esterase was dealt with as early as 1910, in the *Journal of Physiology*, by Rosenheim and Shaw-Mackenzie. They were able to confirm previous statements on the lipolytic action of serum—namely, that a true fat-splitting enzyme is not present in serum, "whilst even the action of what might be called a butyrase on the esters of lower fatty acids is a feeble one." They noted, however, that "serum, although not possessing any fat-splitting action by itself, increases in a remarkable way the lipoclastic activity of pancreatic lipase." In these researches it was found that lipase itself in pancreatic extracts and in pancreatic juice is separable into two parts—namely, "co-enzyme" and "inactive lipase" or pro-lipase, neither of which has any fat-splitting action alone but together become active. The importance of this in all its bearing has hardly received the attention it deserves. Serum contains an activating agent different from but analagous to the pancreatic co-enzyme of lipase, and in this way the activator or activators carried by the blood enable the lipases of the tissues to hydrolyse the fats brought to them by the blood stream after digestion. It was pointed out also that cholesterol "in all cases was found to exert an inhibitory action," not only on lipase, but on the accelerating action of serum with its contained activators. It was found also that lecithin is readily split by lipase, as previously shown by Maclean.

In the course of this work variations were observed in the accelerating action on lipase of a variety of substances, organ press juices, the serum of lower animals, and of the serum in certain diseases. In 1913, in a paper given before the International Congress of Medicine, London, Dr. Shaw-Mackenzie pointed out that the power of the serum to increase fat-splitting is decreased in cancer, in the acute stages also of tuberculosis, and in other bacterial infections. The experiments were repeated. The results fully confirmed his earlier ones, and were detailed by him in a paper published in the *Journal of Physiology* in 1915.

This decreased power of the serum frequently enables a positive diagnosis of cancer to be made in doubtful cases, or the presence of cancer to be excluded. It formed the basis also of further blood tests, dependent in part on the increased cholesterol content in the serum of cancer patients.

The main outcome of these researches on lipase since 1911[3] and onwards has been to show that natural and induced tissue lipolysis with the fatty acids or their sodium salts are important factors in the protective processes and resistance of the body in malignant disease.

The bearing of these researches clearly indicates the importance of the chemical and medical side of the problem of cancer and its treatment, having for its aim the reinforcement of natural physiological defensive processes of the body, and stimulation of tissue lipolytic activity with destructive action on the fats and lipoids of the cancer cell. Perhaps the most striking indication is the application of therapeutic measures in this direction in post-operative cases in the hope that the sum total of recurrences may in some measure be reduced.—I am, etc.,

Ross Institute, Putney, S.W.15, Nov. 26th. W. J. SIMPSON, M.D.

[1] *Wien. klin. Woch.*, 1912.
[2] *Physiological Review*, 1922.
[3] *Proceedings of the Physiological Society.*

MONGOLIAN DEFECTIVES.

SIR,—According to the brief report of Dr. Clarkson's Henderson Lecture, given on page 1015 of your issue of November 27th, I am supposed to have supported, in *The Mongol in our Midst*,[1] a polyphyletic scheme of human origins that is negatived if the mental characteristics of Mongolian defectives are considered, since, in Dr. Clarkson's opinion, any ancestral branch of the human race that had such characteristics must have died out very soon and left no descendants. This is as it may be; but, in fact, I have never suggested the former existence of any such ancestral branch. An "atavistic" explanation of the occurrence of Mongolian characteristics amongst pure-bred "Europeans" no more calls for belief in the former existence of such a branch as Dr. Clarkson has in mind than does the "recapitulation" explanation of embryological and infantile characters require belief in the former existence of any race of creatures just like a human embryo at any stage of its development. If I point out that the turtle heart of a dead infant with congenital heart disease may be "explained" by the theory that mankind passed through a reptilian stage on its way from the amoeba hither, would my view be "negatived" by the statement that a race of such creatures as the child in question would have died out and left no descendants?

Now the homologies between the Mongolian defective, the racial Mongol, and the orang are indisputable. Sera has described skeletal homologies between the Japanese and the orang; Kurz has shown that the brain of the Chinese child is distinguished from the brain of another child by just those characters which distinguish the brain of the orang from that of another ape; and Gans has shown that the brain of the Mongolian defective is distinguished by just those characters that distinguish the brain of the Chinese child and the orang. It is with such facts as these that I am concerned, rather than with any attempt to "prove" a triple line of descent for mankind. But it is an obvious duty to inquire whether these new facts are compatible with the orthodox monophyletic schemes, now a little blown upon. As a matter of fact, they are not, and it would seem that all good Darwinians, who accept as axiomatic the assumption that homologies prove descent, must either ignore the new facts or be content to accept some one of the polyphyletic schemes, which do at any rate have this in their favour, that they afford a convenient explanation of the otherwise unexplained occurrence, in our midst, of not only defective but even distinguished "mongoloids," some of whom beget children and transmit their peculiarities, or some of them, on more or less Mendelian lines.—I am, etc.,

London, W.1, Nov. 29th. F. G. CROOKSHANK.

CLOTHING AND CATARRHS.

SIR,—Mr. Jordan has mistaken the purport of my letter. The question on which I ventured to address you on November 15th was not as to whether my views on the respiratory function of the skin were correct, but as to whether Mr. Jordan was justified in charging me with insincerity in expressing them. That is a purely personal question on which, having made my protest, I do not propose to trouble you further.

Let me add that even if I were inclined to engage in a public discussion on the subject of cutaneous respiration, I should decline to do so with one who includes among his controversial methods the puerile expedient of assuming that his opponent's only authorities were derived from intuitions, and the wholly indefensible one of attributing unworthy motives to those from whom he differs. In the

[1] *The Mongol in our Midst*, second edition, London, 1925. Price 2s. 6d.

Mr. Singleton: Was any illegal operation performed at any time?—None whatever.

Continuing, Dr. Holden said when the effects of the anaesthetic began to pass, his wife called to him: "I don't know what is the matter with Norah. She has gone pale." He then noticed that Miss Marmion's pupils had begun to dilate: they soon became very much dilated. Her pulse was quick, but small. Presently, her face began to go blue and she raised her forearms, clenched her fists and teeth, and went into a convulsion. Dr. Webster exclaimed: "Good heavens, she is having a fit." He at once looked for restoratives and then began artificial respiration whilst Dr. Webster massaged the heart and his wife raised the girl's legs. A hypodermic injection of strychnine was given, and even the old method of mouth-to-mouth breathing to inflate her lungs. They were at work for two hours, and Dr. Webster said at last: "It is no use going on any longer: she's dead." He and Dr. Webster then paid a visit to the police station. Dr. Webster said: "This is Dr. Holden. A lady has died at my house to-night following the administration of an anaesthetic." The witness gave the inspector particulars which were written down on a slate. Then the inspector said: "I cannot do any more about this until the morning. I think that will be all; good-night." As an after-thought the inspector said: "By the way, what was the complaint the lady was suffering from?" The witness said it was a case of an examination under an anaesthetic in which he found that the lady was not pregnant. He did not say a word about criminal operation. Miss Marmion had told him she was going to be married to the boy French in the spring.

Mr. Eastham (cross-examining): If you had nothing to conceal, why did not you give your explanation before the coroner?—Because I was advised not to. You must remember that when the time came for me to do so Sir Bernard Spilsbury had already given his evidence. He had made these extraordinary statements and we had not had any pathologist to refute them.

Do you say no preparation was made for giving an anaesthetic?—No preparations that I know of, but I understood the girl had had no food for about four hours.

Was it not a very odd time and a very odd place to give an anaesthetic to a woman?—No time is an odd time and no place an odd one if it is necessary.

Asked what he meant by his statement to Inspector Blenkinsop, "I have let Dr. Webster in," Dr. Holden said he had been misunderstood. He meant there would be a *post-mortem* examination at Dr. Webster's, and that would let Dr. Webster in for a mess in his house.

Dr. Thomas Watts Eden, consulting obstetric physician to Charing Cross Hospital, said he had great difficulty in accepting Sir Bernard Spilsbury's evidence as to the cause of death, because the doctor who made the *post-mortem* examination came to another opinion. In his own opinion, asphyxiation would be a reasonable explanation of death, coupled with the condition of the heart. He did not think there was any conclusive evidence of an instrument having been used, or that an operation had been performed. He did not agree that there was evidence of any operation being performed even after death.

Dr. Sidney Rawson Wilson, lecturer in anaesthetics and applied physiology in the University of Manchester, said he was of opinion that the condition revealed *post mortem* was consistent with death from syncope, and with the administration of a light anaesthetic. If there was some fatty degeneration of the heart the patient would be very likely to collapse. The witness had himself had many cases in which he had been unable to detect the smell of anaesthetic, except when very deep and prolonged. He had that morning performed two experiments showing that after the administration of an anaesthetic for an hour and a half it was impossible to detect the smell of it.

Dr. William Fletcher Shaw, gynaecological surgeon to the Manchester Royal Infirmary, said he did not think the evidence of the *post-mortem* examination conclusive, either as showing death from shock or death from an anaesthetic. It would have been impossible for the contents of the uterus to have been removed in the way suggested. He could see no evidence conclusive of the use of an instrument.

Dr. Daniel Dougal, lecturer in obstetrics and gynaecology in the University of Manchester, said that the evidence in favour of pregnancy was not conclusive, and he found no evidence of an instrument having been used for the purpose of an operation.

Dr. Webster, in evidence, said he was qualified in 1915, and was severely wounded on the Somme. Since 1922 he had been in practice at Bamber Bridge. He first met Miss Marmion on September 15th this year. On the night when Miss Marmion died she arrived at his house for cards with Dr. and Mrs. Holden. She looked ill, and was shivering, and, after a time, Dr. Holden asked permission to take her to the consulting-room. She was sitting on a chair, complaining of severe pains in the right side and back. Dr. Holden suggested that he should take her home, or that she should go to an infirmary or nursing home. Miss Marmion disagreed, and asked if she could be examined there, and she herself suggested an anaesthetic. Before administering the anaesthetic he took every precaution. Miss Marmion had told him she had had two previous anaesthetics. He denied that he had performed any such operation upon her as the one alleged, and repudiated the suggestion that Dr. Holden performed an operation whilst he (the witness) was occupied with administering an anaesthetic. Regarding the interview at the police station, the inspector seemed very disturbed at seeing him. He did not hear Dr. Holden's reply when the inspector asked what complaint the lady had suffered from. The only words he did hear were "pregnant," and the sentence, "I have let Dr. Webster in." Cross-examined by Mr. Eastham, he denied that he heard Dr. Holden say the girl was pregnant.

Mr. Eastham: Why did you go to see a solicitor if there was no suggestion of abortion?—Because I was rung up by a solicitor who advised me to go to see him.

Mr. Jackson, addressing the jury, said the foundation of the case was the evidence of Inspector Blenkinsop. Sir Bernard Spilsbury came to the case knowing that these men were said to have confessed to criminal abortion. Starting with this knowledge, Sir Bernard, as the Home Office pathologist, proceeded to look for every trifle that bore out the story. As to the police inspector, the man who in trouble took prussic acid, was he a man upon whose mind and recollection they could rely?

Summing-up and Verdict.

Mr. Justice Branson, in his summing-up, said they had heard that both of the accused doctors had hitherto borne irreproachable characters, and that was a matter that should be taken into account. The importance of the case could not be exaggerated. If they were convicted the accused would not only get severe punishment, but they would be ruined in their profession.

The jury retired, but within a quarter of an hour returned, and announced a verdict of "Not guilty." The announcement was the signal for an outburst of cheering, and the court officials had some difficulty in obtaining silence.

On other counts in the indictments against the two doctors no evidence was offered, and the jury returned a formal verdict of "Not guilty."

Mr. Laski said the prosecution thought it highly desirable that he should say that Major Blackburne went out of the court without a stain on his character. The future of Major and Mrs. Blackburne and Mrs. Holden being at stake, it was very important that the public should know that all charges against them had been withdrawn.

The defence of both Dr. Holden and Dr. Webster was undertaken by the London and Counties Medical Protection Society, Ltd.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons has this week made good progress with minor bills, including the Births and Deaths Registration Bill and the Mental Deficiency Bill. The date of enforcement for the former bill has been altered, and the varying definitions of mental deficiency in the latter may be correlated at a later stage. The Government put down the concluding stages of the Smoke Abatement Bill for November 30th, but had to postpone them. The session is expected to end on December 17th, by which time the bills mentioned above and the London University Bill will probably have passed into law. The Government's proposal to reduce the housing subsidies after next September was down for discussion in the Commons on December 2nd, and the coal dispute will probably be reviewed in a debate on December 8th.

The Parliamentary Medical Committee met at the House of Commons on November 24th, Dr. Fremantle presiding, and received a deputation, headed by Colonel Peck and Captain Hill, which represented ex-service pharmacists. The Director-General of the Army Medical Service also attended. The deputation explained that they desired the appointment to the army of two army pharmacist officers of commissioned rank—one at Aldershot and one on the staff of the R.A.M.C. The purpose of these appointments would be for training dispensers and advising on contracts and on mobilization schemes. The Parliamentary Medical Committee promised to consider the proposals, but it was pointed out that the suggestions made would establish a new branch of the Service likely to involve expense. Questions to the Director-General showed that army dispensing is done, for the most part, with drugs already compounded, and that contracts for drugs and dressings are made on a large scale with better economic results than by the system of making up which the deputation suggested. The Director-General said, however, that he would make personal inquiries at some of the big hospitals where drugs were prepared on similar systems to that which the deputation of pharmacists suggested. After the deputation withdrew the Medical Committee asked the Director-General some questions about such service matters as amalgamations of hospitals, since further amalgamations are now being considered separately in each service centre. The closing of an army hospital at Chatham was mentioned, as also a proposal now under consideration to concentrate military hospitals from all round the Kentish coast at Gillingham. The difficulty, it was thought, would be to obtain economy while ensuring efficiency in sudden pressure. Sir Richard Luce asked what further economies, if any, were contemplated in the Territorial Army Medical Service, and what was the chance of restoring the three skeleton field ambulances previously provided per division. The Committee then went over the Rural Housing, Smoke Abatement, Coroners, and Births and Deaths Registration Bills as they then stood.

Births and Deaths Registration Bill.

The Births and Deaths Registration Bill was considered on the Report stage in the House of Commons on November 29th.

Mr. Basil Peto moved the following new clause: "The death of any person shall not be registered unless and until there has been

Medico-Legal.

THE PRESTON CRIMINAL ABORTION CASE.

BOTH PRACTITIONERS ACQUITTED.

THE Grand Jury at the Manchester Assizes having thrown out the bills on charges of murder against Dr. Arthur Stuart Holden of Preston, and Dr. Frederick Langton Webster of Bamber Bridge, but returned true bills on charges of manslaughter and felony, the two accused doctors were arraigned on these charges arising out of the death of Nora Elizabeth Marmion, aged 24, at the Assizes on November 29th, before Mr. Justice Branson. The trial lasted two days, and resulted in the petty jury finding a verdict of not guilty, the Judge remarking: "I think it is right to say I entirely agree with your verdict."

Although the charges against Mrs. Constance Mary Holden, Mrs. Helen Blackburne (the deceased woman's sister), and her husband, Major William Edward Blackburne, bank manager, of being accessories to the murder were withdrawn in the course of the magisterial hearing, their names appeared on the assize calendar, as they had been committed on coroner's warrants. No evidence being offered by the prosecution, the jury on the direction of the judge returned a formal verdict of "Not guilty," and these accused were discharged.

The previous proceedings in the coroner's court and at the magisterial hearing were reported in the BRITISH MEDICAL JOURNAL of November 6th (p. 860) and of November 13th (p. 909).

Mr. T. Eastham, K.C., and Mr. Neville Laski appeared for the Crown; Mr. J. E. Singleton, K.C., and Mr. Lustgarten for Dr. Holden; Mr. J. C. Jackson, K.C., and Mr. Lustgarten for Dr. Webster; Mr. N. B. Goldie for Mrs. Blackburne; Mr. G. G. Blackledge for Major Blackburne; and Mr. Lustgarten for Mrs. Holden.

Both the accused medical practitioners pleaded not guilty.

Case for Prosecution.

Mr. Eastham, in opening the case for the Crown, remarked that up to the matters complained of both doctors bore excellent characters and reputations. Miss Marmion was a single woman of no occupation, and lived with her father. Counsel referred to her friendship with a Mr. French, to a visit she paid to her sister Mrs. Blackburne, and then to a visit to the house of Dr. Holden in October last. That visit, he suggested, was paid with a view to consulting Dr. Holden about her condition, and, as a result, counsel proceeded to suggest, Dr. Holden and his wife, on October 7th, called at Major Blackburne's flat with a motor car and took Miss Marmion to Bamber Bridge, saying they were going to play bridge. They went to Dr. Webster's house, and the prosecution's allegation was that an illegal operation was performed there either by one or both of the accused, and that Miss Marmion died from shock during the operation. At 2 a.m. on October 8th both doctors went to the police station at Bamber Bridge and saw Inspector Blenkinsop. Dr. Webster, as it happened, was the inspector's family doctor, and had attended the inspector's son. Dr. Webster said to Inspector Blenkinsop: "This is Dr. Holden. He has had an operation on a lady at my house to-night. She has died under the anaesthetic." Dr. Holden said: "I have let Dr. Webster in. She was my patient, and Major Blackburne's sister-in-law." Dr. Webster then added: "Yes, she has died at my house; she was his case." Later, at his own house, Dr. Webster said to the inspector: "I am innocent of this charge. They came to my house to play bridge." Counsel said Inspector Blenkinsop had allowed the two doctors to leave the police station without first informing his superior. He had completed twenty-seven years' service in the force, and at the time had been through a serious illness and an operation. On November 4th last he attempted to take his own life by prussic acid, but fortunately the attempt was unsuccessful.

Evidence was then called for the prosecution.

After Mr. Peter Marmion (the deceased woman's father) and Mr. Alexander French had given evidence, counsel intimated that he did not propose to offer any evidence in the cases of the three persons committed on charges of being accessories, but he wished to call Major Blackburne. Mr. Lustgarten objected, stating that although Major Blackburne was not under arrest at the time he gave evidence at the inquest, he was now under arrest, and was a prisoner on bail. The judge said he thought that calling Major Blackburne placed him in a difficult position. Major Blackburne was not called into the witness-box.

The Doctors' Statements to the Police.

Inspector Blenkinsop gave evidence in support of counsel's opening statement.

Mr. Singleton (cross-examining): Did Dr. Webster say to you that the lady was really Dr. Holden's patient, but as death had occurred in his house he thought it was his duty to report it to the police?—No; he did not say that.

Was the coroner mentioned?—No.

Did Dr. Holden say it was an examination he was making of her under an anaesthetic?—No; he did not.

Did he say she had come round from that anaesthetic but went into a fit and died?—No.

Did he say, "I cannot understand why she died"?—No.

Did he say, "This has been a great shock to me, for she was more a personal friend than a patient"?—No.

If your evidence is correct I assume you took it there had been prior to the doctors coming to you a criminal offence committed by them?—Yes.

When was it you attempted to commit suicide?—November 4th.

In reply to Mr. Jackson, who asked why he did not arrest them, the witness said that one doctor said the woman had died from an anaesthetic, and the other gave another reason; he wanted to see the body. The question was repeated, and the witness then replied: "I admit I made a mistake there." He wrote the particulars of Dr. Webster's statement on a slate, but the writing was subsequently rubbed out; he did not know how. He did not know the statement was going to be challenged until the inquest. In re-examination, the inspector said he attempted to take his own life because he had been reduced by his superior for not detaining the two doctors.

Medical evidence was then given.

Medical Evidence for the Prosecution.

Dr. W. A. Simpson, acting police surgeon at Bamber Bridge, said his *post-mortem* examination caused him to form the opinion that death was due to asphyxia owing to the action of an anaesthetic upon a fatty heart. Cross-examined, he said he performed the examination about thirty-six hours after death. He smelt no trace of anaesthetic, but vomiting or attempts at artificial respiration might take away the smell.

Dr. K. M. Duncan, senior police surgeon for the county of Lancaster, who was present at the necropsy, said he did not altogether agree with Dr. Simpson's opinion as to the cause of death. In his own opinion, death was more likely to have been due to shock than to asphyxia caused by an anaesthetic. He detected no trace of an anaesthetic, but he admitted that his sense of smell was very poor. Cross-examined, he agreed that it was difficult with any certainty to give the cause of death. Shock from asphyxia might be the cause of death.

Sir Bernard Spilsbury, honorary pathologist to the Home Office, described his examination of the heart and uterus. He detected no smell of chloroform, ether, or any other anaesthetic, though it was usually to be detected where it had been used. There was nothing in the condition of the heart to account for death. He came to the conclusion that an instrument had been used, and that an ovum had been removed after death. He was of opinion that the deceased woman was about two months pregnant, and he proceeded to give his reasons for that opinion. He attributed her death to shock due to the passage of an instrument. The uterus was quite healthy, and there was nothing in its condition—no disease—to necessitate the passing of an instrument.

Cross-examined by Mr. Singleton, Sir Bernard Spilsbury said he had had experience of thirteen cases of death from shock following immediately after the passage of an instrument. They were all cases in which he had been called in by police authorities. He agreed that before he examined the organs submitted to him he had received certain police reports, and that he made his examination with the knowledge that it had been suggested that an illegal operation had been performed, and no evidence in support of that had been disclosed by the *post-mortem* examination.

Mr. Singleton drew attention to the witness's description of the mark which he attributed to the passage of an instrument, and pointed out that not one of the three well known professional men who had made an examination of the body had been able to see any trace of such a mark. Sir Bernard Spilsbury replied that he could well believe it, but it had not occurred to him that what he found was very probably not the mark of any instrument.

Case for the Accused Practitioners.

Mr. Singleton said the case for the prosecution rested entirely upon the evidence of Sir Bernard Spilsbury, and he submitted that it had not been proved either that death resulted in the way that Sir Bernard Spilsbury had suggested or that an illegal operation had been performed. The medical profession was a body rightly proud of its own reputation, and would be no party to illegal operations. The accused all their days would have cause to be grateful for the help of eminent members of their profession who had come forward to give evidence to help the defence in order to show that what Sir Bernard Spilsbury had put forward as his theory would not hold water. These were two men of unblemished reputation. Not a word could be said against their characters, and yet it was on the theory of Sir Bernard Spilsbury alone that the jury were asked to convict them.

Evidence for the Defence.

Dr. Holden, in evidence, said he had a large practice and there was not the slightest need for him to stoop to any illegal practices. He knew Dr. Webster as a schoolboy, but had lost sight of him until after the war. He had known Miss Marmion about two years, having met her with the Blackburnes. She was not a patient of his before October of this year. On October 6th she made a statement to him of an occurrence at Waterloo Park, and told him her sister did not know of the matter. He said she must go home and tell her sister and brother-in-law, and he later made an examination at the Blackburnes' house, but found nothing to suggest that the girl was pregnant. The following night he telephoned to Dr. Webster and arranged for a game of bridge. There was no thought of any operation. At Dr. Webster's house Miss Marmion complained of pains in her back and right side; it was her own request that she should be examined. He and Dr. Webster both advised her to go into a nursing home. She objected to that because she said it would upset her sister. She wished to be examined there, and said if they found anything that would warrant her removal to a nursing home she would consent to go. She then asked whether she could have a slight anaesthetic as she was in pain. That suited him because he had already made an examination not under an anaesthetic. It was quite usual to give an anaesthetic for a fuller examination of this nature. Dr. Webster tested the girl's heart and made the examination usual before anaesthesia. The anaesthetic used was A.C.E. mixture. Witness then made the examination in the presence of his wife and Dr. Webster. As a result both he and Dr. Webster were perfectly satisfied that Miss Marmion was not pregnant.

Dr. Vernon Davies expressed doubt whether the Minister of Health, in referring to encephalitis lethargica, had in mind elderly people. The bill referred to a condition of arrested or incomplete development of the mind. A man of 50, who got encephalitis lethargica and developed some of these awful symptoms afterwards, was not necessarily suffering from arrested development or incomplete development. It was a perverted development, and the great benefit of the bill was that it made it possible to take charge of these sad cases at whatever age. The bill ought to apply to people of any age.

Mr. Chamberlain replied that the question of people of later ages could be discussed in committee. His view was that clearly it was impossible at present to deal with all ages; it was only possible to deal with those mental defectives whose development had been arrested or rendered incomplete by one of the causes specified.

Dr. Fremantle said that he served on committees with the experts who drew up the distinction, or something like it, and submitted it to the Ministry of Health; they wished only to apply it to the adolescent, and did not intend to extend it to later ages when the number of cases was not sufficiently numerous.

Mr. Rhys Davies withdrew his motion for the rejection, and the bill was read a second time.

Dogs for Research.

In reply to questions from Captain A. Evans and Captain P. MacDonald, concerning the conviction as a dog thief of a man who sold dogs to the University College School of Physiology, London, Sir William Joynson-Hicks said he had seen a press report of the case. He added that the college authorities had stated publicly that their procedure was to buy the animals when required from a general dealer in animals and animals' food, and to require from him a written guarantee that all the animals so purchased were legitimately obtained. The experiments carried on at the college were for the purpose of medical and scientific research, and were subject to the conditions and restrictions laid down by the Act 39 and 40 Vic., cap. 77. The laboratory was inspected at frequent intervals by the inspectors appointed under that Act.

Dr. Salter asked whether the Home Secretary would arrange for allocating to scientific purposes some of the 50,000 stray dogs taken charge of by the Metropolitan Police every year. The Home Secretary replied that he did not think it desirable at present that the police should enter into arrangements of this kind. The man in this case had been previously convicted, but he had no evidence that the college authorities knew that fact. Mr. Bromley asked whether the Government did not think it time to stop "this horrible practice, carried on under the cloak of science." The Speaker ruled out the question. Sir Robert Gower suggested an inquiry into the methods by which dogs and other animals were obtained for vivisection in physiological schools. The Home Secretary replied that he had received a communication from the responsible authorities of the school containing information as to the procedure adopted by them in the purchase of animals. This information, he understood, was not before the magistrate when he dealt with the case. Apart from this case, no complaints had reached him, and he saw no necessity for a general inquiry. The provisions of the ordinary law of larceny were sufficient to deal with thefts of animals. Sir R. Gower suggested that licences should be compulsory for persons dealing in dogs and cats. The Home Secretary said he could not answer without further consideration, for which at present he saw no need.

Smoke Abatement Bill in Grand Committee.

Consideration of the Public Health (Smoke Abatement) Bill was resumed in Grand Committee on November 23rd. On a clause which provided that, to ensure the reduction of smoke, urban authorities might make by-laws regulating the heating arrangements in new buildings other than private dwelling-houses, Captain Waterhouse moved to extend this power to new private dwelling-houses. Dr. Fremantle said advocates of smoke abatement admitted that it was impossible to deal at present with the nuisance in existing houses. They thought they should try to regulate the fireplaces of houses to be built under the Government schemes, but in the name of public health he protested against the idea that the local authorities might construct houses without open fireplaces. The authorities might thereby promote the interests of their electrical or gas undertakings, but Professor Leonard Hill, the greatest authority in the country on the subject, had declared for the open fireplace against systems which heated by convection or radiation, but did not ventilate. Dr. Fremantle asked what the Ministry of Health was doing at its building laboratory to investigate the proper placing and construction of fireplaces. Mr. Greenwood said some local authorities had constructed houses so as to prevent a new smoke nuisance. Mr. Lunn said he had never had a headache till he came to London and sat by a gas fire. Commander Astbury said they all knew that gas fires were unhealthy. Mr. Chamberlain agreed that domestic smoke produced more nuisance than industrial smoke. They now had 8,000,000 houses in this country, none of which would be affected by the bill. New houses were being built at the rate of 200,000 a year, mostly by authorities who did not need to enact by-laws against themselves. Local authorities were fitting 75 per cent. of their new houses with arrangements for cooking or heating by gas or electricity. Mr. Dalton asked if the Ministry was experimenting with smoke-consuming grates. The Minister said that it was. The amendment to include dwelling-houses was defeated, but on the motion of Sir Arthur Holbrook local authorities were empowered to make smoke abatement by-laws regulating cooking apparatus in buildings other than private dwelling-houses.

On the clause authorizing local authorities to make by-laws against noxious smoke, Mr. Chamberlain said the Ministry could not lay down legal definitions of smoke, but scientific standards might later be established. Mr. Womersley asked whether noxious vapours from fish-meal works and fertilizer works would come under the bill. Mr. Chamberlain pointed out that the bill provided that the Minister of Health could schedule the emission of noxious gases of any kind and could send his inspectors to examine the works. The clause authorizing this was carried after Dr. V. Davies had said that bad smells were not necessarily noxious; some did people good. On the other hand, an invisible scentless emission might damage health and vegetation.

The Committee stage was completed on November 24th. A clause excluding ships from the operation of the bill was amended to make the bill apply to ships other than those habitually used as ocean-going vessels. A subsequent clause proposed that any local authority observing a smoke nuisance on premises occupied for the public service of the Crown should report it to the appropriate Government department, which should cause steps to be taken for its abatement. Mr. Lunn moved to add that if the nuisance was not abated or recurred it should also be reported to the Ministry of Health. Sir Kingsley Wood opposed the amendment; it did not, he said, arm the Minister of Health with power to deal with other Government departments. Dr. Fremantle said the amendment reminded the Committee that the Ministry of Health was established to supervise the health of the country generally, but had no power to look into any question affecting the health of persons in any other Government department. Some machinery should be provided to enable the Minister to supervise the Acts for which he was mainly responsible as a whole, and not only those parts which he had to administer. In the army what corresponded to the Ministry of Health had power to look into every department and to make representations; the separate departments remained responsible for carrying them out. There ought to be some such system in civil life. Sir Kingsley Wood said it never had been intended that if small-pox or scarlet fever broke out among the clerks of, for instance, the War Office, medical officers of the Ministry of Health should attend to it. The amendment was withdrawn. A new clause was added giving power to local authorities, singly or in combination, to make researches into atmospheric pollution and the abatement of smoke nuisances, and to contribute towards the cost of researches by other bodies or persons.

Infantile Paralysis.—In reply to a question asking the Minister of Health whether it was desirable, when an epidemic occurred in a school, that it should be closed, Mr. Chamberlain said that was a request for an expression of personal opinion. He had no powers to deal with the closing of schools. In answer to another question, he said that no other public school than Uppingham had been attacked by infantile paralysis.

Foot-and-Mouth Disease.—The Netherlands Government has furnished the British Ministry of Agriculture with details of experiments in Holland which are claimed to show that the virus of foot-and-mouth disease, existing in the flesh of animals infected by that disease, is destroyed by the lactic acid which in a short time develops in the dead tissues. The Dutch experiments dealt with flesh only, but the British Ministry is conducting experiments on the duration of the virus in all parts of the animal, and results have already been obtained indicating that certain parts of the carcass remain infective. In these circumstances the Ministry was not prepared to remove the prohibition of the import of fresh carcasses from countries infected with foot-and-mouth disease.

Ventilation of Underground Shelters.—Sir L. Worthington-Evans, on November 30th, replying to Mr. Thurtle, who asked what was the object of the recent action of his department in sending a company of soldiers into the London postal tube and keeping them there for a number of hours, said that the experiment was designed to furnish data regarding the ventilation required under certain conditions in underground shelters, such as dug-outs.

Notes in Brief.

The Home Secretary is not satisfied with the present strength of the factory inspectorate, and as soon as the factories bill has made substantial progress proposes to set up a committee to make a comprehensive survey of the position.

Milk brought from Ireland, the Channel Islands, and the Isle of Man will not come under either the Public Health (Imported Milk) Regulations or the Milk and Dairies Order.

Up to and including September 30th, 1926, 209,685 widows' pensions had been applied for. Of these, 161,309 were awarded and 44,930 rejected. For the same period, 15,375 orphans' pensions were asked for; 11,123 being granted and 3,433 rejected.

Mr. Amery (Secretary for the Colonies) states that the progressive establishment of a chain of tropical research stations has been recommended by the Imperial Conference to the consideration of the Governments concerned.

The Home Secretary has under consideration the extension of the police returns for 1927 to include further particulars of the persons killed by vehicles on the road or as passengers in such vehicles.

On November 30th the Lords' Amendment to the Lead Paint (Protection against Poisoning) Bill was agreed to by the House of Commons.

delivered to the registrar of the district in which such death has occurred a certificate signed by a medical practitioner of the fact of death and of the cause of death, as respectively in this Act defined, and such certificate shall be given only after the medical practitioner has seen the body." The bill, he said, provided no machinery for the inspection of a body after death. There could be no disposal of the body without a registrar's certificate, but that certificate only stated that that official had registered the death. He asked for an assurance that the Ministry of Health possessed powers to put an end to the present unsatisfactory state of affairs, by which a very large number of people supposed to be dead, but were not really dead, were in danger of immediate burial. The fact of death should be certified by a medical man who had seen the body.

Mr. Groves, in seconding the new clause, expressed the same opinion. According to the Registrar-General, only 40 per cent. of the people buried in this country were certified on medical evidence to be actually dead. The whole matter was one of expense. The Government could not find the money to do what was required, and medical men would not do it without payment. After all, the panel doctor was responsible for his panel patient until life was extinct, and it ought to be his duty to certify that life was actually extinct after seeing the body. A similar rule should obtain in Poor Law institutions and hospitals. The new clause gave the Government an opportunity to make the necessary representations to the General Medical Council seriously to consider the matter, and to see if this long-standing grievance could not be brought to an end.

Dr. Fremantle said that this clause was an alternative to that which he had put down, which was originally a specific clause in the bill with which he was personally associated. In the bills he had introduced in previous years on this subject his aim had been to meet the particular objections put forward by Mr. Peto. The stage which Mr. Peto and his friends had reached was one he (Dr. Fremantle) had passed through, with many others. This matter was not merely one of expense; the real question was that it was impracticable from the point of view of the doctor's time. That argument really met the statement that only 40 per cent. of deaths were certified after a personal view of the body by the doctor. If the doctor was visiting a patient regularly, and the patient was gradually going downhill, the doctor could not watch and be there, and was of no use if he were there, every minute right up to the very last. The doctor saw the end coming, and he naturally discreetly retired. He would call in the course of his round, and he would retire when there could be no question about the end. It was safe to conclude that in practically every one of the 60 per cent. of deaths certified without actual view of the body the doctor was quite assured in his own mind, when he signed the certificate, that death had supervened and was bound to do so. In ordinary practice the doctor was busy on his round from the time he had finished his morning surgery until the evening. He had often no time for his meals, which, as a rule, were scratch meals. He admitted that the proposal would give greater confidence to the public, but it was impracticable; there were only a certain number of doctors in this country. If this extra duty were thrown on them they would undertake it, but it would be at the expense of their patients. It was a question of proportion. The only way to meet the case was that suggested in an amendment of which he had given notice. It suggested that, after consultation with the Government department, a special officer might be appointed for this particular purpose. His amendment proposed that the county boroughs might, where they wished, appoint such a special officer. He was very sorry that the society that entertained this fear of premature burial had not accepted the half-measure, but had gone out for the whole proposal in Mr. Peto's amendment. As so often happened, in aiming at the impracticable, the society had lost the half-loaf which he had offered. He opposed the amendment, as it was impracticable. He hoped it would be withdrawn, and that they would see what the Government suggested as an alternative.

Dr. Vernon Davies said that he had no hesitation in saying that so far as the towns were concerned and the districts near towns the proposal that the doctor should see the body after death was feasible. In twenty-three years' practice he had only failed once to see the patient after death. In country districts the matter was not so easy, as a doctor might have to travel twenty miles to see a body. If something could be done to meet the case of the country areas he would be prepared to support the proposal.

Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health) said that under the Act of 1874 a doctor in attendance on the deceased person in his last illness was required to give a certificate as to the cause of death to the best of his knowledge and belief. If there was no medical certificate the registrar at once referred the matter to the coroner, and if the death was due to an accident, an industrial disease, or other cause which was appropriate for consideration by the coroner, the registrar referred it to the coroner before registration. The certificate was thus, even in present circumstances, an important element in the evidence determining how the case was to be treated. A doctor was not required to see the deceased person after death, nor was it essential for the purposes of a certificate that he should do so. In ordinary cases, where he had attended the deceased until shortly before death and was informed by a relative that death had taken place, that knowledge would enable him to certify the cause of death, provided this was consistent with the opinion he had formed of the disease. It would be a pity to imperil the useful provisions of this bill, which had been supported by all parties, because of a question of this kind. The steps that could be taken to meet the views of those who felt strongly on this matter had been considered. It was true that in about 40 per cent. of cases doctors did see the deceased after death; the difficulty of meeting the situation was very largely experienced in the rural areas. It was difficult to impose not only on medical men but on the families of the deceased persons charges and expenses which in many cases they would resent. Therefore he suggested that the case might be met by the Registrar-General's office extending the system of the reference by registrars to coroners on the facts as disclosed by the medical certificate of the cause of death. If that policy was pursued as it was intended that it should be, the certificate would show whether the doctor had seen the deceased after death, and how long before death he last saw him alive; and it would thus be possible that any case not seen after death or a reasonably short period before death would come under review by the coroner before registration or burial. It was to be anticipated that this arrangement, in addition to bringing a large class of the more doubtful cases under special review, would greatly increase the proportion of cases seen by a doctor after death, and the improvement in that respect would be progressive to the extent of reaching by stages a standard which even Mr. Peto might regard as satisfactory. In order that the progress and success of this course of action might be properly watched the Registrar-General would obtain statistics showing the proportion of deaths certified by doctors who had seen the deceased after death, and these figures would be published in the Registrar-General's annual publication. The Minister of Health was also prepared to say that if the result of the action now proposed was ineffective he would be prepared to reconsider the whole question with a view to securing the object in view either by executive or legislative action.

Mr. Peto withdrew his amendment

On the motion that the bill should be read a third time, Mr. Groves, in supporting the third reading, repeated his plea that the panel doctors should be required to view the body before certification.

Dr. Fremantle thanked the Ministry of Health and the House for supporting the bill. He said that the feature in which it would be found most useful would be the notification of stillbirths.

The bill was read a third time and passed; it will come into operation on July 1st, 1927.

Mental Deficiency Bill.

The Mental Deficiency Bill, which has passed the House of Lords, came on for second reading in the House of Commons on Monday night, November 29th. Mr. Chamberlain (Minister of Health), in moving the second reading, explained that the measure was very urgently required in the interests of mental defectives themselves. The real substance of the bill was to be found in the first clause, which extended the definition of defectives. Hitherto there had been difficulty in dealing with mental defectives who were not defective at birth or in early life. There had been some extremely painful and distressing cases of encephalitis lethargica where, as an after-effect, serious mental deterioration had taken place, but the boy or girl affected, not being of an early age, could not be dealt with under the existing law. The bill provided that cases of mental defectives, whether innate or induced after birth by disease, injury, or other causes, could be dealt with.

Calling attention to a number of amendments on minor matters to the existing law, designed to make it more complete, the Minister stated that Clause 6 dealt with local authorities. The present Act authorized combination of local authorities, but did not enable them to provide additional beds which could be lent to other authorities. Clause 6 of the bill permitted a local authority to build an institution of a size sufficient to deal with its own cases and to take in patients from other areas. The local mental deficiency authority and the local education authority could provide the institution jointly. It was hoped that mutual arrangements would be come to whereby the best use would be made of the provisions of the bill, which had the unqualified support of the Central Association for Mental Welfare. The bill did not in any way interfere with the safeguards provided in the Mental Deficiency Act of 1913. In addition to the general limitation in that Act, it was provided that there must be two medical certificates, one of which must be signed by a medical practitioner specially approved for the purpose. The case would then come before a judicial authority. That authority must be satisfied that the person was a defective and was a subject to be dealt with under the Act. At the end of a year, after the case had been dealt with in an institution, special medical and other reports had to be made and forwarded to the Board of Control. If the Board, after considering the reports and the means of care and supervision which would be available if the defectives were discharged, came to the conclusion that the continuance of the Order was required in the defective's interest, they could make an order continuing detention in the institution for another year. The same procedure was followed at the end of succeeding periods of five years each. In the case of a defective under 21 there was the further safeguard that visitors might, when the patient reached 21, discharge him if they thought his detention was no longer required in his own interest. In addition, all defectives detained under the Act were visited by members of the Board of Control from time to time. The bill did not diminish any of the existing safeguards.

Mr. Rhys Davies moved the rejection of the bill because it was not confined to children and because it would be wiser to wait until three committees now sitting had reported.

Mr. Morrison seconded the motion for rejection. After some discussion, Sir K. Wood (Parliamentary Secretary to the Ministry of Health), in reply, said that the bill would enable existing accommodation to be more usefully employed. He agreed that much care and attention should be given to the cases of mental defect after lethargic encephalitis. The bill provided that the treatment to be made available was, first, supervision; secondly, guardianship; and, thirdly, institutional care

THE annual dinner of the Yorkshire Association of Glasgow Graduates will be held in the Great Northern Hotel, Leeds, at 6.45 p.m. on Friday, December 17th. The guest of the evening will be Mr. Farquhar Macrae of Glasgow. All old Glasgow graduates resident in Yorkshire are invited to the dinner, particulars regarding which may be had on application to the honorary secretary, Dr. W. MacAdam, 40, Park Square, Leeds.

THE Tropical Disease Prevention Association is issuing an appeal for subscriptions to enable it to depute Dr. Louis Sambon and his fellow workers to investigate further the subject of cancer houses. Dr. Sambon, working under the auspices of the association named, carried out investigations in northern Italy, which he reported in the *Journal of Tropical Medicine and Hygiene* last August. The observations he made are held to justify the use not only of the term "cancer houses," but even of such phrases as "cancer streets" and "cancer villages." The facts are thought to support the suggestion that there is an unequal distribution of some element in the environment (whether it be a parasitic organism or other) which may be a predisposing or even a causative agent. The appeal is signed by Lord Aberconway and a number of well known men of medicine and science. Subscriptions may be sent to Mr. J. E. Russell, treasurer, at the National Bank, 101, Baker Street, London, W.1.

AT the meeting of the Hunterian Society of London on Monday next, December 6th, at Simpson's Restaurant, Cheapside, a discussion on the nervous child will be opened by Dr. H. C. Cameron and Dr. Bernard Myers at 8.30 o'clock.

AT the meeting of the Harveian Society of London at Paddington Town Hall on Thursday, December 9th, at 8.30 p.m., a discussion on the etiology of high blood pressure and the respiratory phenomena associated with high blood pressure and chronic nephritis will be opened by Sir John Broadbent, Bt., followed by Professor Collingwood, Dr. Poynton, Dr. Parkinson, and Dr. de Wesselow.

THE Medical Society of the Mediterranean Coast has arranged a tour from December 6th to 24th, visiting Hyères, St. Raphael, Cannes, Grasse, Vence, Nice, Mentone, Monte Carlo, Monaco, and Beaulieu, open to all medical practitioners, their families, and students in so far as accommodation allows. The cost, including hotels and motor-car excursions, is 1,050 francs, apart from the cost of the railway journey outwards to Toulon and homewards from Nice. Further information may be obtained from the Office Français du Tourisme, 55, Haymarket, S.W.1.

THE buildings, in Endsleigh Gardens, W.C.1, of the Wellcome Bureau of Scientific Research and the Museum of Medical Science have been reconstructed and will be reopened on Wednesday next, December 8th, at 3 p.m., by Mr. Neville Chamberlain, Minister of Health. Afterwards Sir Walter Fletcher, M.D., F.R.S., Secretary to the Medical Research Council, will give an address on research and citizenship.

MESSRS. WILLIAM HEINEMANN (Medical Books) announce for immediate publication the fourth edition, in two volumes enlarged and revised, of Jacobi's *Atlas of Dermochromes*, with a new and original text by Henry MacCormac, C.B.E., M.D., F.R.C.P.

IN view of the heavy demand for facilities for undergraduate instruction which has been experienced at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, arrangements have now been made for the practice of the hospital to be open to medical students as from January 1st, 1927, at half the fees charged to graduates.

ON his retirement from the medical officership to the Post Office staff at Carnforth, after more than forty years' service, Dr. E. S. Jackson was presented by past and present employees and friends with a microscope.

DR. GEORGE WYNDHAM CROWE has been presented by the past and present members of the Worcester police force with a handsome silver salver upon his retirement from the post of police surgeon after forty-eight years' service. Dr. Crowe, who lives in the house occupied by the founder of the British Medical Association, Sir Charles Hastings, was local secretary of the Jubilee Meeting of the Association held at Worcester in 1882.

A TURKISH pharmacopoeia has been introduced by the Turkish Government at Angora in place of the French codex hitherto in use.

A MONUMENT to Professor Chauveau was unveiled at the National Veterinary School at Lyons on November 7th.

A CHAIR which had belonged to the late Lord Lister was stolen, on November 16th, while in transit from the Shetland Islands to the Wellcome Historical Medical Museum. It had been made from the operating table of the old Edinburgh Infirmary, and was the property of Sir Watson Cheyne. It has now been recovered.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the BRITISH MEDICAL JOURNAL are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Mediocra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

QUERIES AND ANSWERS.

LICE ON DOGS.

A. J. C. T.—Many different drugs are recommended for the treatment of lice on dogs: a solution of potassa sulphurata in warm water is excellent if the dog can be washed out of doors, but owing to its objectional odour it is not suitable if the dog has to be washed indoors. Fresh pyrethrum powder dusted into the dog's coat and brushed out after a few minutes is generally sufficient to remove the lice, but as it only stupefies the insects, the brushings must be immediately burned. "Lavol," a proprietary preparation manufactured by Cooper's Dip, is one of the best washes for general ecto-parasites in dogs and is non-toxic. None of the drugs in present use are capable of destroying the "nits," and the treatment must be repeated in about a week. Bedding should also receive attention, as the eggs are often deposited on the bedding material and the larvae reach the dog in this way. In addition to the above measures, any of the usual disinfectants in common use—except the carbolic series of disinfectants, which are very toxic to dogs—may be used in dilute solution.

CHILBLAINS.

DR. A. MACBETH ELLIOT (London, W.) sends a note on the treatment of chilblains (erythema pernio) by ultra-violet light. He says: "Until recently I have had the same unsatisfactory results with whatever line of treatment I adopted in cases of chilblains. Early in October I had my first case this winter—a married woman who had been a martyr to chilblains all her life; both hands and feet were affected, and she was hardly free through the winter. Ultra-violet radiation with quartz mercury vapour lamp to the fingers and toes and to the legs and arms with the tungsten lamp gave immediate relief. After four radiations the condition had cleared up, and so far there has been no return. In another case in a woman giving the same history as above, but the feet being the more painful, all local signs had disappeared at the end of ten days. Three cases in children all responded to this line of treatment. No other treatment was administered during the radiation; high frequency, ionization, diathermy could be employed to supplement it if necessary, and in the past I have had temporary relief with these, but never anything like the results with ultra-violet radiation. Needless to say, each case must be treated on its merits; ultra-violet radiation requires very careful supervision."

DR. F. A. E. SILCOCK (Leicester) recommends the use of luminous heat-ray treatment in combination with the ultra-violet light. "I have," he says, "treated many cases with very satisfactory results by using a Bach mercury vapour ultra-violet and a Sollux luminous heat-ray lamp, concurrently focused on the affected parts. By this method the relief of the pain appears to be quicker and natural sunlight is much more closely imitated."

DR. SIDNEY MATTHEWS (Crawley) is induced by the mention of ultra-violet treatment of chilblains to say that he has found advantage from ultra-violet treatment in Raynaud's disease. He has a case of the second degree under treatment.

DR. A. H. MACDONALD (London), who is inclined to think that chilblains come under the heading of a deficiency disease, recommends the following general line of treatment for the prevention of chilblains: (1) Exercise. Lucky is the child who has to walk half a mile or so to school. Those who only go a short distance and then sit down to lessons suffer more frequently. It will be found advisable on arrival at school that a quarter of an hour should be spent in tramping round, so as to set the circulation going. (2) Cod-liver oil should be given to

Universities and Colleges.

UNIVERSITY OF OXFORD.

Radcliffe Travelling Fellowship.

AN examination for a Radcliffe Travelling Fellowship of the annual value of £300, and tenable for two years, will be held during Hilary term, 1927, at the University Museum, commencing on February 15th. Candidates must have passed all the examinations required by the University for the B.A. and B.M. degrees. They must not have exceeded four years from the time of passing the last examination required for the degree of B.M. The successful candidate must before election declare that he intends to devote himself during the period of his tenure of the fellowship to the study of medical science and to travel abroad with a view to that study. The fellowship will be vacated *ipso facto* by a Fellow who spends more than nine months in the whole within the United Kingdom. The Regius Professor of Medicine and the examiners present a yearly report on the work done by each Fellow to the electors, who may, if they think the report unsatisfactory, declare the fellowship forfeited. The fellowship is open to women.

The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. A candidate desiring to offer in addition a special branch of either medicine or surgery must send notice of this to the Regius Professor by February 2nd. Intending candidates should send their names, addresses, qualifications, etc., to the Regius Professor of Medicine, University Museum, by February 2nd.

At a congregation held on November 27th the following medical degrees were conferred:

D.M.—E. G. T. Liddell.
B.M.—J. de la M. Savage.

UNIVERSITY OF BIRMINGHAM.

DR. F. A. PICKWORTH has been appointed director to the Joint Board of Research for Mental Diseases in the City and University of Birmingham, in place of the late Sir F. W. Mott. Dr. Pickworth received his medical education at Charing Cross Hospital, obtained the diplomas M.R.C.S., L.R.C.P. in 1921, and graduated M.B., B.S. in 1922. His previous appointments included those of house-physician to Charing Cross Hospital and research officer and pathologist to the Birmingham Joint Board of Research.

UNIVERSITY OF LEEDS.

MR. J. S. YOUNG, M.A., B.Sc., M.B., Ch.B.Glasg., has been appointed lecturer in experimental pathology and assistant director of cancer research, and Mr. H. J. Channon, B.A., M.Sc.Lond., biochemist in the Department of Experimental Pathology.

Cancer Research Fellowships have been awarded to Miss Georgiana M. Duthie, M.D.Manch., who has been a demonstrator in the pathology department of the University since January, 1925, and to Mr. G. A. Collinson, M.Sc.Leeds, who during the same period has acted as research assistant to Sir Berkeley Moynihan.

Appointments in the Faculty of Medicine were made as follows: Mr. E. R. Dawson, B.Sc.Leeds, demonstrator in biochemistry; Miss W. Joan Wadge, B.A.Camb., research assistant in physiology; and Mr. F. C. Happold, M.Sc.Manch., demonstrator in pathology and bacteriology.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following have been appointed members of the Board of the Faculty of Medicine: Dr. William Dyson, O.B.E., Dr. D. S. Sutherland, and Mr. S. R. Wilson, M.B., B.S., F.R.C.S.

UNIVERSITY OF GLASGOW.

AT the graduation ceremony on November 20th the degree of M.D. was conferred on Evelyn M'Pherson.

The Services.

COMMISSIONS IN THE R.A.M.C.

COMMISSIONS in the Royal Army Medical Corps, not exceeding twenty-five in number, will be offered by nominations allotted to the medical schools in January, 1927. A certain number of nominations will in addition remain at the disposal of the War Office. Candidates must be under 28 years of age on January 31st, 1927. The names of those nominated, and applications for consideration, must reach the War Office not later than January 10th. The list of medical schools to which nominations have been allotted and further information will be found in our advertisement pages.

EXAMINATION FOR DENTAL OFFICERS R.N.

AN examination for dental surgeons for entry into the Royal Navy will take place at Guy's Hospital Dental School, London Bridge, S.E.1, on January 4th, 1927, and the following days. Nine appointments are offered for competition. Further particulars will be found in our advertisement columns.

Medical News.

DR. GUSTAV MONOD, physician to the Thermal Hospital at Vichy, has been appointed Chevalier of the Legion of Honour. Dr. Monod, who is M.R.C.P.Lond. as well as M.D.Paris, is delegate for Great Britain of the Association for the Development of the Medical Relations of the Faculty of Medicine of Paris; he is also, as our readers know, our French Correspondent.

A SERIES of lectures and practical courses of instruction for the diploma of psychological medicine will commence at the Maudsley Hospital, Denmark Hill, S.E.5, on Tuesday, January 4th, 1927. Part I of the series, in addition to practical instruction and demonstrations, will comprise twelve lectures on the physiology and anatomy of the nervous system by Dr. F. Golla, pathologist to the London County Council and Director of the Central Pathological Laboratory, Maudsley Hospital, beginning January 7th; four lectures on the histology of the nervous system and the endocrine glands by Dr. C. Da Fano, reader in histology in the University of London, commencing on January 4th, and eight lectures on psychology by Dr. Henry Devine, medical superintendent of the Holloway Sanatorium for the Insane, beginning January 6th. Part II will follow in March, and will consist of a further series of lectures and demonstrations. The fee for the whole course of Parts I and II is 15 guineas, for Parts I and II separately 10 guineas, for one single lecture in Part I or Part II 4 and 2 guineas respectively. Inquiries should be addressed to the Director of the Central Laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

A THREE months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital of the Metropolitan Asylums Board, Tottenham, by Dr. F. H. Thomson, medical superintendent, beginning January 3rd, 1927. Particulars can be obtained from the Clerk to the Board, Victoria Embankment, E.C.4.

AT the meeting of the Post-Graduate Hostel to be held at the Imperial Hotel, Russell Square, on December 7th at 9 p.m., Mr. Clifford Morson will discuss pecc.ant prostate; on Thursday, December 9th, at the same hour, a discussion on carcinoma of the oesophagus will be opened by Sir Charters Symonds. Dr. Arnold Chaplin will read a paper on the medical service at sea in the mercantile marine, on Friday, December 10th, at 9 p.m. Dinner (price 5s.) will be served at 8 p.m. All medical practitioners are welcome.

THE Fellowship of Medicine announces that on December 4th, at 5 p.m., Mr. L. Bathe Rawling will deliver a lecture at the Medical Society, 11, Chandos Street, W.1, on injuries to the head; open to all members of the medical profession without fee. On December 6th the Infants Hospital will begin a fortnight's afternoon course. Practical courses in obstetrics can be arranged at Queen Charlotte's Hospital to occupy a fortnight or a month; every week the City of London Maternity Hospital holds a course in obstetrics and child welfare; personal application must be made to the Fellowship offices; the Fellowship can also arrange clinical assistantships at the Samaritan Hospital. The following courses will be held next month: a fortnight's intensive course in medicine, surgery, and the specialties at the Prince of Wales's General Hospital, from January 10th to 22nd; a fortnight's all-day course in cardiology at the National Hospital for Diseases of the Heart, from January 17th to 29th (entries limited to twenty); a fortnight's course in diseases of children at the Royal Free Hospital and the Children's Clinic, from January 10th to 22nd; and a month's course (Tuesday and Saturday mornings at 11) in psychological medicine at the Bethlem Royal Hospital from January 11th to February 5th. A further series of lectures on medical and surgical emergencies will be held under the auspices of the Fellowship of Medicine, and there will also be a series of clinical demonstrations in ophthalmology at the Royal Eye Hospital; particulars to be announced later. Copies of all syllabuses of the special courses, a programme of the general course of work, and the *Post-Graduate Medical Journal* can be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association was held at the Savoy Hotel on November 23rd. Sir W. I. de C. Wheeler, the president, was in the chair, and the guest of honour was the Right Hon. Sir Thomas Molony, the late Lord Chief Justice of Ireland. The toast of "The Guests" was proposed by Sir John William Moore and responded to by Sir Thomas Molony and Lord Shaw of Dunfermline. The toast of "The President and Association" was proposed by Dr. R. Travers Smith, and Sir William Wheeler responded. The success of the dinner was enhanced by a delightful musical programme.